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By

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A THESIS

APPROVED FOR THE DEPARTMENT OF ANTHROPOLOGY

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Chapter 1

Introduction

Research Problem

The nature of long distance interaction between regions in prehistory is a concern for archaeologists world-wide. The interactions between regions can often have effects upon local socio-political development in each area. The implications for possible contact between regions, therefore, have directed many investigators to broader regional analyses and models to assess the impact of interregional interaction.

The nature and extent of interaction between prehistoric Mesoamerica and the North American Southwest (including Northern Mexico) has been debated by archaeologists for decades. This work investigates interaction between these areas based upon the stylistic, temporal, and geographic distribution of copper bells in the North American Southwest. Copper bells (also called crotals) have been identified in the past as probable mesoamerican trade items.

The copper bell inventory is used as the primary data set in the distributional analyses in Chapter 5 and builds upon past inventories by Pendergast (1962a) and Sprague and Signori (1963). New bells are added to these inventories. The updated inventory contains 615 bells from 94 sites in the North American Southwest and is presented in Chapter 4.

The possible origin(s) of copper bells found in the Southwest is also addressed in this study. The evidence presented by Di Peso (1974) for copper production at Paquime, also known as Casas Grandes, in North Mexico is evaluated. West Mexico, known as a copper producing area, is also considered as a possible origin of bells found at southwestern sites.

Presented below is a summary of past and current approaches and models developed by archaeologists for interpreting prehistoric Southwest/Mesoamerican interaction. Although several approaches are currently employed by archaeologists. I deal in greatest detail with world systems theory and the prestige goods economy model because they incorporate the types of possible relationships this study addresses and evaluates. Consideration is also given to possible criteria for evaluating these models within the distributional analyses and interpretations of the copper bell data.

Past and Current Approaches to Southwest/Mesoamerica Interaction

Archaeologists have discussed the interaction between the North American Southwest and Mesoamerica for over a hundred years. The most polemic stances have developed between what have come to be called the "isolationists" and the "imperialists" (Upham 1986). Isolationists envision the North American Southwest cultures as developing in situ, exclusive of mesoamerican influences. The proponents of this view do, however, acknowledge that maize and other crops, ceramic technology and other symbols and material goods most likely spread northward from Mesoamerica. What they emphatically deny is that Mesoamerica had any direct influence on the socio-political development in the Southwest (Riley 1978). Most mesoamerican items appearing in the Southwest were considered to be the product of down-the-line trade.

Down-the-line trade items are exchanged by neighboring communities. Each keeps part of these items, and then trades the other part to another neighboring community further distance from the origination point. This process is repeated, and with each successive trade fewer and fewer of the items are passed on. Down-the-line trade can result in items moving over considerable distances.

Renfrew (1977) identifies a resulting distributional pattern of such exchange called monotonic decrement. This is exhibited by exponential drop-off in frequency of the item in relation to distance from the source and can be assessed by evaluating the quantitative distribution of the trade item for a fall-off pattern. Down-the-line trade is an extreme opposite of direct long-distance trade between widely geographically separated groups.

Imperialists argue for direct contact between the North American Southwest and Mesoamerica (Upham 1986). Those who hold this perspective propose a variety of interaction levels, the direct effect of this interaction upon the socio-political development of the Southwest, and the nature of the transmittal of mesoamerican trait complexes into the North American Southwest. One school of imperialists argue for a pochteca-like system of itinerant mesoamerican traders entering the Southwest on a regular basis to trade for raw materials such as turquoise and other local resources (e.g., Kelley 1966; Kelley and Kelley 1974; Reyman 1976, 1978).

What the archaeological community needed in order to instigate more useful discussion between the two opposing schools of thought was a theoretical framework in which to evaluate such interaction studies. The world systems theory was applied to the Southwest/Mesoamerica problem in the hopes of facilitating such discussions (Pailes and Whitecotton 1979). Primarily, however, it reflected an imperialist stance.

World Systems. A world systems perspective is based on the Wallersteinien model of a hegemonic relationship among a core, semi-periphery, and periphery (Wallerstein 1974). Some archaeologists argue that the prehistoric North American Southwest is a periphery to a mesoamerican core in a world economy. These archaeologists propose that the mesoamerican core(s) began exploiting desired raw materials from the Southwest and established the dependency of

southwestern groups upon mesoamerican trade items and relationships (e.g., Blanton and Feinman 1981; Pailes and Whitecotton 1979; Weigand 1978, 1979, 1982; Weigand et al. 1977; Weigand and Harbottle 1993; Whitecotton and Pailes 1979, 1986).

Whitecotton and Pailes (1979) incorporate the "pochteca" model into their world systems analysis. They argue that these traveling traders were cultural emissaries from Mesoamerica and had direct contact with individuals at sites in the North American Southwest. Central to their argument and to world systems theory in general, is the necessity of a state involvement (acting as the core). This level of complexity is necessary to enable the controlled and regulated exploitation of the semi-periphery and periphery (Wallerstein 1974). However, as Braniff (1993) points out, the problem lies in identifying the mesoamerican state(s) which is/are exploiting the North American Southwest as a periphery.

Hall (1986) presents a significant advancement in the study of peripheries of world systems and incorporates an isolationist view. He proposes that a world system can be manifested in a multitude of degrees along a continuum. "Labelling regions anywhere along this continuum as "peripheral areas," however, masks important variations and leads to conceptual confusion" (Hall 1986:391).

Hall presents an interesting classification illustrating various levels of core-periphery relations: an external arena, a contact periphery, a marginal periphery or region of refuge, and a full-blown periphery or dependent periphery. The external arena is one where there is no direct contact whatsoever between the groups in question. Down-the-line trade, however, might occur. A contact periphery is one where market articulation is weak, and the impact of the core on the periphery is strong, but with no impact of the periphery on the core. A marginal periphery or region of refuge is a situation where market articulation and the impact of the periphery on the core is moderate, but the impact of the core on

the periphery is strong. A full-blown periphery (or dependent periphery) is one where market articulation, impact of the core on the periphery, and impact of the periphery on the core are all strong (Hall 1986:392).

Hall's classification allows for the existence of a world system with a range of possible relationships with other regions or groups. Therefore, it enables discussion of a mesoamerican world economy with arguments directed at the nature of the "periphery", including the possible external economic and/or political stance of a region or group to a world system, thereby allowing an isolationist perspective. It would be helpful to include another class of core-periphery relation which would accommodate a gradient between Hall's external arena and contact periphery. I propose implimenting a "contact zone" category which would be applicable to a situation where there is some market articulation (two-way exchange), but where the impact of the core on the periphery is weak to moderate. For the purposes of this report, I will incorporate this category of a contact zone. It better reflects the viewpoint held by some archaeologists who would most likely place the North American Southwest somewhere between an external arena and a contact periphery in relation to a mesoamerican world economy. Of course, the terms weak, moderate, and strong in relation to this classification are subjective and relative. However, this does not diminish the utility of the classification.

The current dilemna in arguments for and against the North American Southwest as a periphery (of any kind) to a mesoamerican world economy is the lack of consensus of what constitute the criteria for evaluation. As the discussion between Whitecotton and Pailes (1979, 1986) and McGuire (1980) illustrates, evidence suggesting a non-peripheral status of the Southwest can also be used to suggest it is indeed a periphery of a mesoamerican core. The argument has come to a stalemate. As recently stated, "no one can decide how many or what items

must be present. Each side is unwilling to accept the other's criteria for proof, and much of the argument turns on how to interpret negative data" (McGuire 1993:35).

This report will approach the problem of criteria from a slightly different angle using the origin of the copper bells position in a mesoamerican world economy to evaluate the possible relationship of the Southwest with this system. If the origin for the bells is mesoamerican, then one can evaluate the existence of a state either as part of or involved with the originating area. If a state is involved, we need to consider market articulation, the effect of the core on the periphery, and the effect of the periphery on the core. If, however, there is no evidence for state involvement, one can safely propose that this interaction is not part of a world economy. These criteria will be assessed during the analysis of the distribution of copper bells.

McGuire (1986) also voices a pertinent criticism of a world systems application to the Southwest/Mesoamerica problem. He feels that the model masks important relationships among peripheries and that it neglects to explain their development and effect on core areas. He finds a combined approach using prestige goods economy and mode of production concepts useful in investigating relationships between the Southwest and Mesoamerica.

Prestige Goods Economy/Prestige Sphere of Exchange. The concept of a prestige goods economy (or prestige sphere of exchange) has also been used by several archaeologists recently in discussion of Southwest/Mesoamerica interactions and long-distance trade (e.g., Bradley 1986, 1987, 1993; Nelson 1981, 1986; Mathien 1986). A prestige sphere of exchange includes restricted status items that are exchanged only between elites (Nelson 1986).

In reference to direct trade relationships with mesoamerican groups, elites from each area could be trading with one another. The trade could also be

controlled by the elite of one area who could send a representative to an elite at another area. In light of implications for developing elites in the North American Southwest, trade from elites in Mesoamerica could have been directed to particular individuals with certain roles or status at southwestern centers. This could result in the emergence of social differentiation and proto-elite statuses due to the control and distribution of prestige goods gained from mesoamerican elites (and possibly from direct contact with these "foreigners", if direct contact occurred [see Pailes 1990, Helms 1993]).

To evaluate whether such a situation was developing in the North American Southwest with prestige goods, there are certain characteristics one would expect to find. One expectation, or criterion, would be centers (or major nodes) in the distribution of these artifacts. In the case of copper bells, this should be exhibited by greater quantities of bells and/or a greater diversity of types at these nodes than at surrounding sites. The rationale for such expectations is that individuals engaged in the exchange of prestige goods would be gaining power, as mentioned above, by the restricted distribution of these prestige goods to other individuals which would help cement loyalties and obligations. Therefore, if a prestige goods exchange system between elites from Mesoamerica and "emerging elites", or big-persons, at regional centers in the North American Southwest was occurring, the distribution should indicate a nodal patterning rather than a non-centralized distribution among southwestern sites. Intrasite distribution of prestige goods, should exhibit a clustered or restricted context pattern. A dispersed intrasite distribution would indicate equal access to these goods, and therefore imply the lack of support for an elite(s) or big-person(s) restricting their distribution.

Copper bells are among several artifact types found in the North American Southwest which are identified by several archaeologists as probable prestige

goods (e.g., Di Peso 1974: Nelson 1981, 1986). The advantage of using copper bells in this type of investigation is that they lend themselves to a stylistic and typological classification. Specific stylistic types may indicate their origin. Futhermore, among the so called "mesoamerican" artifacts found in the North American Southwest, copper bells are the most numerous with the exception of shell artifacts. Thus, there is a large sample with which to evaluate distributional patterns for evidence of down-the-line exchange, direct exchange/nodal exchange and/or prestige goods economy, and possible involvement in a mesoamerican world economy.

Research Summary

In order to accomplish these goals the research design of this project addresses not only the distribution of copper bells in the North American Southwest, but considers their origin(s) to evaluate possible relationships between the people producing these artifacts and the people acquiring them. Therefore, Chapter 2 considers the evidence presented by Di Peso (1974) for copper production at Paquime, the primary site in the Casas Grandes area, to evaluate if this locus is the origin of the bells. The results of this analysis indicate that the evidence presented by Di Peso (1974) is not sufficient to support copper production at Casas Grandes. Therefore, it is necessary to locate the most logical originating point of these artifacts.

To assess if West Mexico is the origin of the copper bells, Chapter 3 reviews the metallurgy and technological chronology of this region as developed by Hosler (1986, 1988a, 1988b, 1988c, 1990). As the chapter indicates, West Mexico is the logical origin of copper bells appearing in the Southwest. This is supported by the technology used by West Mexican metalsmiths and the styles of bells

produced in great quantities at these West Mexican sites. The argument is strengthened by the fact that during the Postclassic Period (A.D. 650-1520), West Mexico is the only verified copper producing area north of Central America that is contemporary with southwestern bell occurrences.

Additional support for West Mexico as the origin of the copper bells that are recovered in the North American Southwest and in northern Mexico is the technological chronology of copper production for the area. The chronology is divided into two main phases based upon the technology used in each phase (Hosler 1986, 1988b).

These two phases reflect an effective temporal delineation of copper bell distribution in the North American Southwest and are used in this study. Phase I (A.D. 800 to 1200-1300) begins with the introduction of copper metallurgy into West Mexico and lasts until the adoption of the use of alloys. Phase II (A.D. 1200-130 to 1520) is characterized by new bell types being added to the repertoire due to the added design possibilities that the use of alloys make possible (Hosler 1986, 1988b). Some of these new bell types make a subsequent appearance at southwestern sites. Phase II coincides with the redated Medio Period at Paquime (Dean and Ravesloot 1993), thus making this temporal division analytically useful in determining relationships between Casas Grandes, other southwestern sites, and West Mexico.

Chapter 4 presents the methodology, typology, and inventory used for this study. The copper bell typology is based upon the one developed by Pendergast (1962). Sprague and Signori (1963) made a few additions, which are also included. In order to alleviate lumping of bells into types, I have expanded the typology to include distinct types which have become apparent since the original development of the typology.

Within Chapter 4, the copper bell inventory is presented in Table 4.2. The overall distribution is mapped in Figure 4.2. As shown in the map, the majority of southwestern and north Mexican sites with copper bells occur in central and north central Arizona, in the Mimbres Valley and Chaco Canyon of New Mexico, and in the Casas Grandes area in northwestern Chihuahua, Mexico.

The analysis of the distributional data is conducted in Chapter 5 and assesses temporal relationships between sites included within the study. This analysis is divided into two major segments based on the temporal placement of sites with copper bells as they occur in either Phase I or Phase II. In Phase I, the Hohokam region is identified as the center of the copper bell network within the Southwest. The Gatlin site is suggested as a possible major node in this network. In Phase II, the Salado and Hohokam are identified as holding a major position in acquiring copper bells from West Mexico and in the distribution of the bells to other southwestern sites, with Gila Pueblo suggested as the major node of this system. Casas Grandes appears to be a major consumer in the copper bell network from West Mexico in Phase II, but there is little distributional evidence to indicate that Casas Grandes was engaged in any large scale trade of copper bells to other southwestern sites.

Chapter 6 presents the conclusions from the above analyses. The major results of the analyses are the identification of West Mexico as the probable origin of copper bells appearing in the Southwest (including Casas Grandes), the position of the Hohokam and the Salado in a prestige goods trade network, the identification of multiple trade networks changing through time, and that copper production at Paquime is not supportable with the available evidence. A broader theoretical implication of these results is the possible role of long-distance trade relationships in the development of local elites or "big-persons". Local power

could be gained through the prestige of these foreign contacts and of controlling the access and distribution of prestige goods to other individuals and groups.

Chapter 2

Copper Production at Casas Grandes?

Many archaeologists have accepted Di Peso's (1974) conclusion that Casas Grandians were producing copper artifacts, including copper bells in the Medio Period, which has recently been redated to A.D. 1200-1300 to 1450-1500 (Dean and Ravesloot 1993) and were trading these bells northward to other southwestern sites (e.g., Plog et al. 1980). Therefore, seemingly there no longer was a need to identify a mesoamerican source for the bells. However, as this chapter will indicate, Di Peso's argument for copper production at Casas Grandes is not well supported by the available evidence and the mesoamerican component to North American Southwest copper bell trade must be again reconsidered.

The argument for copper production at Casas Grandes is based on the identification of possible smelting workshop material, copper artifact types which are believed to be unique to Casas Grandes, and chemical and spectrographic analyses of local copper ores and artifacts. As will be discussed in greater detail, the methods used for the chemical characterization are not conclusive and do not establish that the local copper ores tested are the source for the copper artifacts found at Paquime. The results of the tests only imply that it is possible the copper artifacts from Paquime are produced from local ore sources. More importantly, the only piece of workshop material confirmed to be associated with copper production, a piece of sprue, is from an unprovenienced surface find near or on the site. In addition, the copper artifact forms which Di Peso cites as unique to Casas Grandes are shown not to be unique to the area or are from secondary deposits in which their temporal associations cannot be firmly assigned to the Medio Period or even to prehistory.

The Nature of the Evidence for Copper Production at Casas Grandes

Workshop Material. The strongest support for Di Peso's argument for copper production at Paquime has been the presence of copper workshop material attributed to the Medio Period, including four worked copper ingots and a piece of sprue (a waste product of the smelting process). Table 2.1 provides the associated specimen numbers and their provenience at Paquime. As the table indicates, the sprue, which is central to Di Peso's argument, was an unprovenienced surface specimen (Di Peso et al. 1974:511). It was found in 1963 by Dr. John K. Anthony of the Department of Geology, University of Arizona, while walking on or near the site (Di Peso et al. 1974:501). The discovery of the sprue on the surface was made after the excavations by Di Peso were completed. This is significant because of the amount of disturbance the surface of the site received during the excavations. Furthermore, the exact location of the surface find was not noted.

The other workshop materials found at Paquime are what Di Peso calls copper "ingots." These are worked copper nuggets with no evidence of having been smelted. They were not melted and shaped as the traditional usage of the term ingot would imply (e.g., Hosler 1992). Rather, they consisted of several pieces of ore, one of which (CG/6335) ..."had been artificially shaped by cold hammering. On the obverse and reverse sides the coppersmith had gouged several grooves" (Di Peso et al. 1974:511). The other "ingots" consist of cold worked nuggets without any further elaborative explanation. Di Peso states that the worked nuggets may have been "a preliminary step in the production of something else" (Di Peso et al. 1974:511). There is no evidence to indicate that these cold worked copper nuggets were an intermediary stage in the smelting process.

Table 2.1

Workshop Material

Specimen #	Classification and Material	Provenience
Uc/1010	Type II, Sprue	Surface
CG/1278	Type I, Worked Nugget	Rm. 8B-8, Fill
CG/5097	Type I, Worked Nugget	Rm. 27C-14, Fill
CG/6335	Type I, Worked Nugget	Rm. 12-16, Fill
CG/6775	Type I, Worked Nugget	Rm. 22-16, Fill

(adapted from Di Peso et al. 1974:511)

As Table 2.1 indicates, all four "ingots" were discovered in room fill, rather than in a primary context, which makes dating them to the Medio Period difficult. Furthermore, they were discovered in four different rooms in three separate parts of the site. One would expect workshop material to be clustered in or near a production area, rather than scattered as these nuggets are. Overall, none of Di Peso's evidence for workshop material appears to support copper production at Paquime.

Chemical Characterization and Spectrographic Analyses of Copper from Casas Grandes. In addition to workshop material, Di Peso (1974) presents results from several chemical and spectrographic analyses of copper from Casas Grandes as evidence supporting local production. There are several problems with the interpretations of these analyses, including a dependence on spectrographic analysis to indicate the origin of copper ore found at Paquime, an assumption that the copper artifacts found at Paquime were produced from this same ore source, and the extremely small sample of copper objects from Paquime which were chemically tested.

Di Peso recovered a little under fifteen kilos of raw copper material found at seven scattered locations at Paquime (Di Peso et al. 1974:500). Di Peso does not give exact provenience of these locations, only the total amounts from the units in which the ore was found (see Di Peso et al. 1974:501). The analysis of the ore "determined that it was a secondary ore which had weathered and become oxidized, a type generally found on or near the earth's surface. This natural alteration caused enough variation in its basic chemical composition to make it impossible to pinpoin its source to a specific mining locale" (Di Peso et al. 1974:500). Hawley, a geologist, characterizes the ore sources along the Mexico/United States border similarly, and states that the mineral ores in the region were highly variable and contained foreign elements and that "these

impurities vary in different mines and even in different parts of the same mine, a condition which diminishes the reliability of spectrographic analysis in determining original provenience of the ore...." (Hawley in Di Peso et al. 1974:500). However, even after citing this obvious problem with using a spectrographic analysis, Di Peso proceeds to base his argument of local copper production upon this method.

The Casas Grandes spectrographic analysis consisted of testing only two items: a piece of native copper (CG/1575M) and a copper bell (CG/8341), also called a crotal (Table 2.2). The results could only support a vague conclusion that "it is quite possible that the bell was made from copper similar to the native copper tested and analyzed" (Di Peso et al. 1974:501). As Table 2.2 indicates, there are discrepancies in the chemical makeup between the native copper sample and the bell tested. "The probability is high that the bell carries impurities that were picked up during fabrications or molding process. The impurities now present may have come from clay" (Peirce in Di Peso et al. 1974:501).

This is another difficulty in using a spectrographic analysis on smelted copper. There is no way to control for impurities picked up during the smelting process, or the elimination of some trace elements in the same process (David Killick, personal communication 1993). Lead isotopes, however, do not change with smelting and are reliable indicators of ore similiarities to finished products. Killick (personal communication 1993) states that spectrographic analysis is better suited to address questions of technology, and that lead isotopic analysis is the preferred method for "finger-printing" mineral ores and artifacts. This is a direction for future research in identifying the ore sources of the copper artifacts found at Paquime and other southwestern sites.

It is interesting to note that there is more similarity between the copper bell tested from Paquime and West Mexican ores than between the bell and the ore

Table 2.2

Results from the Casas Grandes Project Spectrographic Analysis

Specimen	*Elements*				
	Major	Intermediate	Minor	Trace	Faint Trace
Native Copper CG/1575M	Copper	Silicon	Calcium	Silver	Lead Molybdenum
Crotal (Bell) CG/8341	Copper	Silver Iron Silicon	Calcium		Manganese Aluminum Lead Nickle Magnesium

(adapted from Di Peso et al. 1974:501)

sources from the Casas Grandes region. Root (in Di Peso et al. 1974:500) finds that "the copper of the West Mexican coastal area, however, contained iron in addition to silver." Table 2.2 indicates that the bell tested contains both silver and iron, but the sample of copper ore from Casas Grandes does not. As indicated above, it is not conclusive that the bell originates from West Mexico, due to the problematical nature of spectrographic analysis. However, the fact that the bell's chemical composition more closely resembles a West Mexican ore than ore sources from the Casas Grandes region is important in regards to the growing possibility that Casas Grandes may not be a center of copper production.

The Evidence for Slag at Casas Grandes. Another piece of evidence proposed by Di Peso in support of copper production at Paquime is the presence of stone objects identified as slag. Three specimens were found, one of which was discarded in the field (Table 2.3). There is no indication why one piece was discarded. The other two are identified as being "vesicular, spongy masses of stone. They were possibly clinkers from a furnace, or slag from the smelting of ore" (Di Peso et al. 1974:481). There is no strong evidence supporting the conclusion that these objects were used in the smelting of ore, nor have they been tested for any chemical residue of copper, such as has been successfully conducted recently in West Mexico. Copper smelting at the site of Amapa, Nayarit, for example, has been confirmed by seven pieces of slag which have been verified as having traces of copper, indicating that they were associated with the production of copper (Meighan 1976:119).

Of the three pieces of proposed "slag", two were found in fill and one was found in the first level under the surface, not primary contexts. These secondary contexts make dating these items to the Medio Period or even to prehistory difficult. Therefore, it appears inappropriate to use these objects as evidence

Table 2.3

Slag Specimens from Paquime

Specimen Number	Provenience
CG/7329	Room 23-16, Fill
CG/s-1915A	Plaza 1-21, Fill (discarded)
CG/s-2940A	ST-1, TT 6W (test trench, level 1)

(adapted from Di Peso et al. 1974:481)

supporting the presence of copper smelting at Paquime. If they had been used in a furnace, where is the evidence for these furnaces? The only specialized activity thermal features located at Paquime have been a series of agave ovens located in two areas of the site. It is possible that these are the sources of the vitrified rocks. Obviously, testing the rocks for the presence of trace amounts of copper would be useful.

Copper Artifact Forms Unique to Paquime. The final possible evidence for copper production at Paquime are nine copper artifact forms assumed at the time to have been unique to Paquime. This type of evidence, if confirmed, is a basis for establishing sites as specializing in the production of certain goods when presented with other supporting production evidence. For example, Hosler (1992) uses the uniqueness of certain crotal forms in the Huastec region of eastern Mesoamerica, in combination with the presence of a true smelted ingot and two pieces of intermediate processed material, to argue for a second locus of production of bronze alloys in Late Postclassic Mesoamerica. The first locus is identified as West Mexico in her earlier work (Hosler 1986, 1988a, 1988b, 1988c).

Table 2.4 provides a listing of the copper artifact forms which Di Peso cites as being unique to Paquime and different from forms found at other southwestern and mesoamerican sites (Di Peso et al. 1974:512-529). These unique forms include a needle, tinklers, a skewer, a grooved axehead, a bezel and tessarae constructed from sheet copper, and a specific copper bell type. Many of the forms are represented at Paquime by a single specimen. In fact, outside of the eight tiny pieces of copper tessarae (seven from a single ring), the only forms Di Peso cites as unique to Paquime that are represented by more than a single example are the copper tinklers.

Table 2.4

Copper Objects Cited as Unique to Paquime

Artifact Classification	Description	Quantity
1) Type IB Needle	Perforated in sharp end	1
2) Type I Cone Tinkler	Unperforated, cold hammer worked and rolled into a cone	11
3) Type II Cone Tinkler	Perforated, cold hammer worked and rolled into a cone	4
4) Tessarae	thin sheets cut in various sizes and abraded on the edges	8 (7 on a ring, 1 from fill)
5) Skewer	Hammered, rolled into semi-hollow double pointed pin	1
6) Bezel	A 1 cm wide piece of hammered sheet copper, rolled at the ends to hold pieces of turquoise	1
7) Grooved axehead	Solid copper, made by two piece mold smelting, with a ¼" groove molded into the base of the axe and two holes, one at each end	1
8) Type IA1b crotal	Produced by cire perdu, smooth body with a raised lip around bell mouth	1
9) Type IV crotal	Perforated, hammered and folded into roughly a rectangular shape, enclosing a pebble	1

(adapted from Di Peso et al. 1974:512-529)

The Type IB Needle was believed to be different from West Mexican needles only in the placement of the eye (Di Peso et al. 1974:512). However, a closer examination of the needle forms from Amapa, Nayarit, indicates that this form is not unique to Paquime (Pendergast 1962b). One of the needles shown from Amapa is virtually identical (including the placement of the eye) to the type IB needle from Paquime (Pendergast 1962b:372, Figure 2) (see Figure 2.1 in this chapter [items a and b] for a comparison). Additional examples of this needle type can be found in Hosler's work (1986:366, 1988:200-201). She assigns this needle form as Type I, "...the eye of which is pointed" (Hosler 1986:366) and states that they are common in the Jalisco, Michoacan, and Nayarit areas (see Figure 2.1 [item c] for an example of her Needle Type I).

The cone tinkler types I and II, sub-classed on the absence or presence of a perforated hole for stringing, are also not unique to Casas Grandes, although these data post-date Di Peso's analysis. A tinkler is formed from a flattened piece of sheet copper which is rolled into a cone-like shape. An example of this form is known from an excavated context at San Jose Baviacora in Sonora (Richard Pailes, personal communication 1993). Another specimen is documented from the Eleventh Hour Site in New Mexico dating from A.D. 1100-1200 (Mathien 1991). The latter is too early to have come from a Medio Period Paquime source according to Dean and Ravesloot's (1993) revised chronology which dates the Medio Period to A.D. 1200-1250 to 1450-1500.

A complicating factor for tracking the occurrences of tinklers in the Southwest and Mesoamerica is that they are not true crotals (bells) and therefore are not included in copper bell inventories. They have not been considered as a bell type because tinklers are created from a cold-hammered piece of sheet copper, instead of cire perdu (the lost-wax method) used in producing cast copper bells. Pendergast (1962a) does not list tinklers as a separate artifact type for

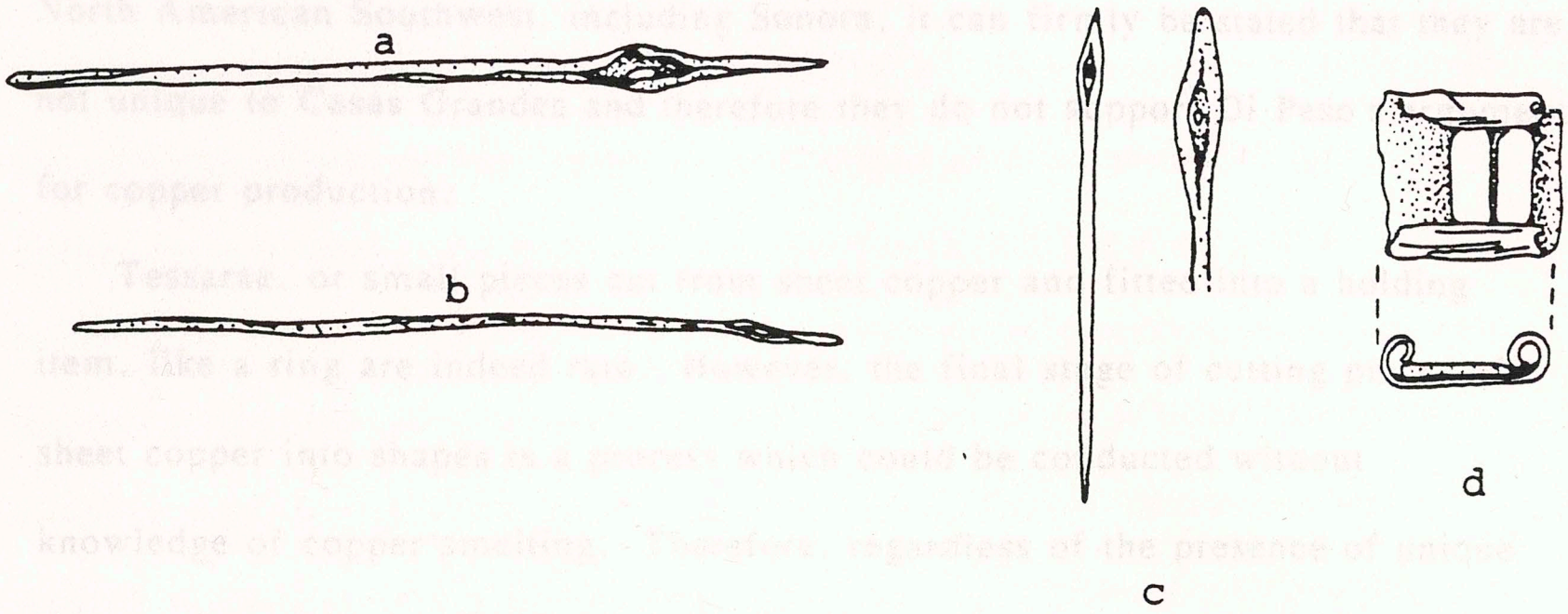


Figure 2.1

Copper Needles and Copper Bezel with Turquoise Tessarae

a. Casas Grandes (CG/4264): Di Peso Needle Type IB
(illustration adapted from Di Peso et al. 1974:Figure 637-7:5
b. Amapa, Nayarit: Pendergast Needle Type IA
(illustration adapted from Pendergast 1962b:Figure 2)
c. West Mexico: Hosler Needle Type I
(illustration adapted from Hosler 1988a:Figure 6)
d. Casas Grandes (CG/5837): Copper Bezel
(illustration adapted from Di Peso et al. 1974:Figure 637-7:2)

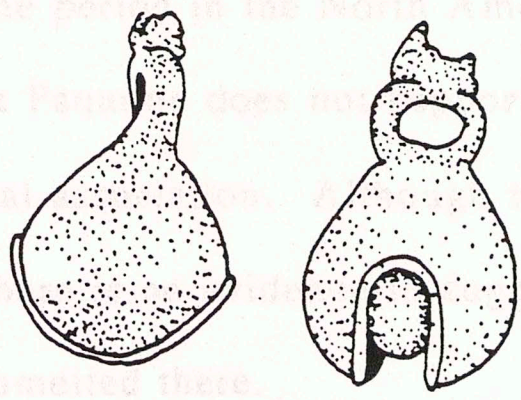


Figure 2.2

Casas Grandes Copper Bell (CG/3837)

(illustration adapted from Di Peso et al. 1974:667-7/2)
Di Peso assigns this bell to type IA1b in his typology which is equivalent to Pendergast type IA2a. The bell is pear-shaped, rather than globular, indicating it is best re-assigned to the added copper bell type IC18a (See Figure 4.1 in Chapter 4).

Mesoamerica. Most likely tinklers would be considered a simple varient of a sheet copper artifact type. However, as tinklers are found at other sites in the North American Southwest, including Sonora, it can firmly be stated that they are not unique to Casas Grandes and therefore they do not support Di Peso's argument for copper production.

Tessarae, or small pieces cut from sheet copper and fitted into a holding item, like a ring are indeed rare. However, the final stage of cutting pieces of sheet copper into shapes is a process which could be conducted without knowledge of copper smelting. Therefore, regardless of the presence of unique shapes of cut copper sheet material at Paquime, there is no evidence to support the initial smelting of the copper sheets at the site.

More importantly, the *Conus* shell ring inlaid with seven of the eight tessarae from Paquime is associated with a floor context which is assigned to the Diablo Phase (A.D. 1400-1450 to A.D. 1500). This context is from a time period so late as to have few implications for this study. The main significance of establishing copper production at Paquime is the implication that these items were being traded to other southwestern sites. Very few copper artifacts are known from this protohistoric time period in the North American Southwest. Even so, the presence of tessarae at Paquime does not support copper production, regardless of their temporal association. Although the ring could have been constructed at Paquime, there is no evidence to suggest the copper sheet from which they were cut was smelted there.

Inlay and mosaic work are common both in West Mexico and the Hohokam area in the North American Southwest. Although mosaic pieces are normally constructed of shell and turquoise, the method of applying cut pieces of minerals to shell with lac, a glue-like substance, is widely practiced in both areas. It is possible that the pieces of copper sheeting were cut at Paquime and set into the

ring with lac, the method of which is not unique nor indicative of copper production at the site.

A similar argument can be made for the bezel, which was also listed as a form unique to Paquime (Di Peso et al. 1974:522). This bezel is a flat piece of copper sheet which has been rolled at each end to hold cut pieces of turquoise which are cemented to the base with lac (see Figure 2.1 [item d]). The method of attaching pieces of minerals to a surface with lac, as discussed above, is well known, even if the piece is unusual. This particular piece (CG/5837B) was not found in a primary context assignable to the Medio Period. Rather, it was located in the Plaza 4-14 fill (Di Peso et al. 1974:522) making it impossible to date it to the Medio Period.

The skewer which Di Peso cites as unique in form to Paquime is also known from the West Mexican site of Amapa in Nayarit. However, Meighan (1976:112, 406) identifies this artifact type at Amapa as a pin, rather than a skewer. Both the "pins" from Amapa and the "skewer" from Paquime are bi-pointed and resemble a needle without an eye. They were both constructed by tightly rolling a thin piece of copper sheet. A comparison between the single example of a "skewer" at Casas Grandes (see Di Peso et al. 1974:521) and examples of the 27 "pins" at Amapa (see Meighan 1976:406) confirms that these are indeed of the same basic type and construction. Therefore, the "skewer" is not a form unique to Paquime.

Di Peso suggests that a certain copper bell type (Casas Grandes type IA1b) is also unique to Paquime. There is only one example (CG/3837) of this bell type found at the site, and it was located on the floor in Room 12-12 (Di Peso et al. 1974:528). If we accept Di Peso's type assignment of the bell as type IA1b in the Casas Grandes bell typology, then its Pendergast typology equivalent is Type IA2a (Di Peso et al. 1974:524). Pendergast (1962a) indicates the distribution of

this type includes West Mexico and the southern and northern Maya regions. The West Mexican bells of this type are documented from A.D. 1000-1450 (Pendergast 1962a:526). This temporal assignment is well within the revised dates for the Medio Period at Casas Grandes (Dean and Ravesloot 1993).

Closer examination of the bell's characteristics (see Figure 2.2) reveals a pear shaped bell with a raised lip and smooth resonator body, rather than the globular body shape with which it was classified by Di Peso. The proper type assignment of this bell in Pendergast's typology is Type IC1a. However, this type does not separate bell subtypes based upon the presence or absence of a raised lip around the mouth of the bell. The pear shaped form with a raised lip is known from Mesoamerica, for example from the Cenote of Sacrifice at Chichen Itza (Lothrop in Chase, Coggins, and Shane 1984:52). Hosler's Type 9a is a pear shaped bell with a smooth resonator body and raised lip (identical to the example from Paquime), and she indicates that examples are known from Guerrero in West Mexico (Hosler 1988b). In the revised copper bell typology presented in Chapter 4, this bell form is assigned to Type IC18a and is also found in the North American Southwest at Pottery Mound in New Mexico (Linda Cordell, personal communication 1993). I personally examined the bell specimen from Pottery Mound and feel confident of its typological assignment.

Di Peso lists a cold-hammered variant of a copper bell form as also being unique to Paquime (Di Peso's Type IV [documented in Sprague and Signori 1963 as Type IF]). It is a perforated sheet of copper (slightly rectangular in shape) which is folded to enclose a pebble. A similar piece is recorded from the Showlow Ruin in Arizona (Arizona State Museum, catalog card and artifact #GP6727). The Showlow specimen is larger than the Paquime specimen and is more square in shape. However, the technique of folding the copper sheet to encase a pebble and perforating it for stringing is the same. Sprague and Signori

(1963:3) document this bell type (IF) as being highly variable in shape and size. Therefore, the slight differences between the two specimens are not significant.

The final copper item cited by Di Peso as being unique to Casas Grandes is an axehead with a ¼" groove (CG/8202A). This axe was located in Plaza 3-8 in the well stairwell lying on a step in the stairwell fill along with other exotic items and is believed to have been associated with the Diablo Phase of the Medio Period (Di Peso et al. 1974:523). The unique characteristics of this item are its grooved and tapered bit design (Figure 2.3). Furthermore, it is the only copper artifact from Paquime which was constructed using a two piece smelting mold (Di Peso et al. 1974:508). The use of two piece molds for metallurgy is extremely rare in the prehistory of Mesoamerica.

This particular axe form is an enigma for the prehistoric Americas. No other axes with these characteristics have been documented. Hosler (Dorothy Hosler, personal communication 1994) has analyzed and viewed literally thousands of copper artifacts from the Americas in private and museum collections and has never located an axe like the Casas Grandes example. This stairwell context is not firmly dated. The location of the axe in the well stairwell is such that it could have been thrown down the stairs at any point during the Diablo Phase (redated by Dean and Ravesloot [1993] to A.D. 1400-1450 to A.D. 1500) or afterwards. The uniqueness of the axe is not in question. Rather, it is the only one of the items Di Peso cited as unique to Paquime that has proven to be so. An argument for copper production at the site cannot be based upon a single unique item with questionable temporal associations. We do know that the single axe is late in prehistory and as discussed above, this particular time period has little relevance for the possible production and trade of copper artifacts from Casas Grandes.

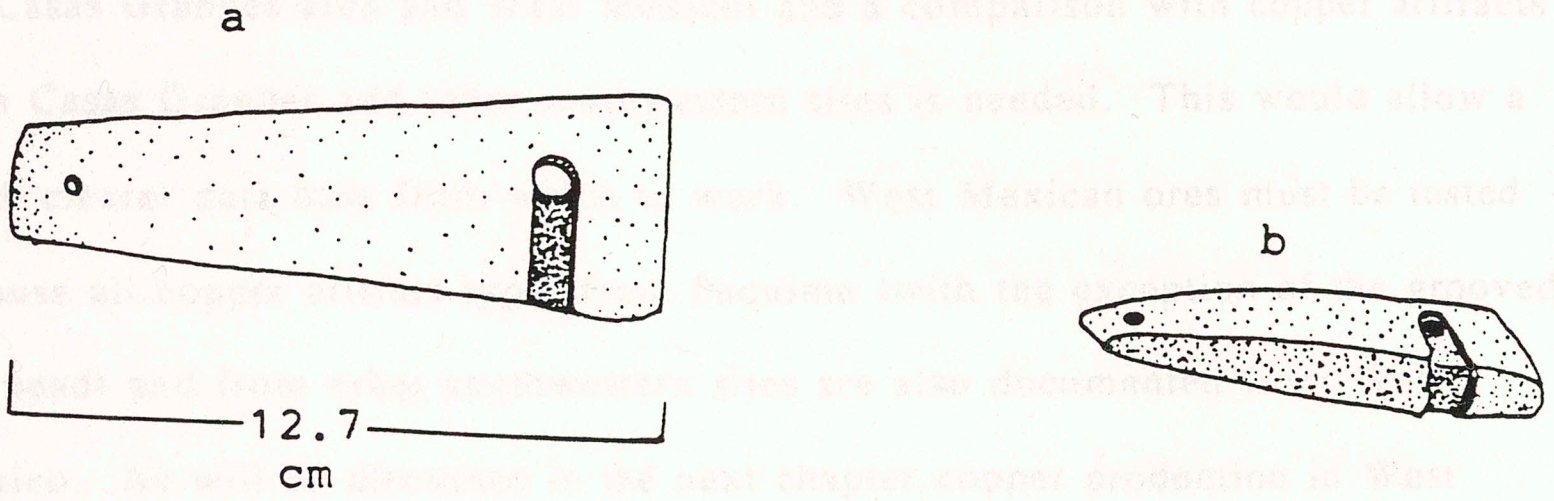


Figure 2.3

Casas Grandes Copper Axe (CG/8202A)

(a. is adapted from Di Peso et al. 1974:Figure 663-7; b. is adapted from Di Peso et al. 1974:Figure 637-7)

Overall, the argument presented by Di Peso (1974) for copper production at Paquime is not substantiated by the available evidence. It is not certain, however, that copper production did not occur at Paquime. The lack of evidence implies the absence of metallurgy at the site, but further positive evidence, such as a lead isotopic analysis of copper ores from various regions (especially from the Casas Grandes area and West Mexico) and a comparison with copper artifacts from Casas Grandes and other southwestern sites is needed. This would allow a much clearer data base from which to work. West Mexican ores must be tested because all copper artifact types from Paquime (with the exception of the grooved axe head) and from other southwestern sites are also documented from West Mexico. As will be discussed in the next chapter, copper production in West Mexico is well supported.

Conclusions

This chapter has reviewed the evidence that Di Peso provides in support of copper production at Casas Grandes including the results of spectrographic analyses on local ore and artifacts, the presence of possible workshop material, and unique copper artifact forms, and has found that the evidence does not support his argument. If Casas Grandes is not producing copper artifacts, where is the origin of the copper bells found in the North American Southwest (including Casas Grandes)? I suggest that West Mexico may be the origin of the copper artifacts found at Casas Grandes and that there was considerable interaction between the two areas based upon the quantity and diversity of types of copper artifacts found at Paquime, all of which have correlates in West Mexico except the grooved axe form. In addition, it appears that West Mexico is also trading bells to other North American Southwest sites. The position that Casas

Grandes may have held in this trade is still unclear, but will be addressed in Chapter 6.

For the purposes of this study Casas Grandes will be evaluated as a possible source for copper artifacts, not as a producer of these artifacts but as a possible node in the exchange system. Chapter 3 will outline the current knowledge of West Mexico and the proposed technological sequence of copper metallurgy in this region as it is of direct relevance to the study of copper bell trade. With the revised chronology for Casas Grandes and the revised view of copper production as presented here, it is necessary to take a closer look at West Mexico. Its geographic proximity to the Southwest and its status as a producer of copper artifacts in the Post-Classic identify it as the most likely source of copper bells in the Southwest, including Casas Grandes.

Chapter 3

West Mexican Metallurgy

Chapter 2 establishes that the available evidence is insufficient to conclude that there was copper metallurgy at Paquime during or prior to the Medio Period (A.D. 1200-1250 to A.D. 1450-1500). West Mexico is the likely origin point of the copper bells due to the geographic proximity of West Mexico to the North American Southwest and because West Mexico is the only verified copper production area north of Central America during the Postclassic Period (A.D. 650-1520) with the exception of the Huastec region in eastern Mesoamerica (Hosler 1986, 1988a, 1988b, 1988c, 1992). The Huastec region does not appear to be a possible source for southwestern copper bells; it is too late, dating to A.D. 1450-1520 (Hosler 1992), and it lacks comparable bell styles with the Southwest. Therefore, it is necessary to consider the technological, stylistic, and chronological nature of copper metallurgy in West Mexico to evaluate if this area is the origin of the copper bells found in the North American Southwest.

West Mexico, as a geographic area, includes the modern Mexican states of Nayarit, Jalisco, Colima, Sinaloa, Michoacan, northern Guerrero, and the southern portion of the state of Mexico. Metallurgy was originally introduced to this region by maritime contact from lower Central and South America which apparently spanned many centuries, beginning possibly as early as A.D. 650 (Hosler 1986, 1988b). Metallurgical processes and products were then adapted and transformed to meet local needs and goals (Hosler 1986). Hosler, a specialist in West Mexican metallurgy, classifies West Mexican copper technology into two main temporal periods (Phase I and Phase II) based on artifact chemical composition and design characteristics (Hosler 1986, 1988a, 1988b, 1990). Her technological chronology is useful for interpreting possible copper trade

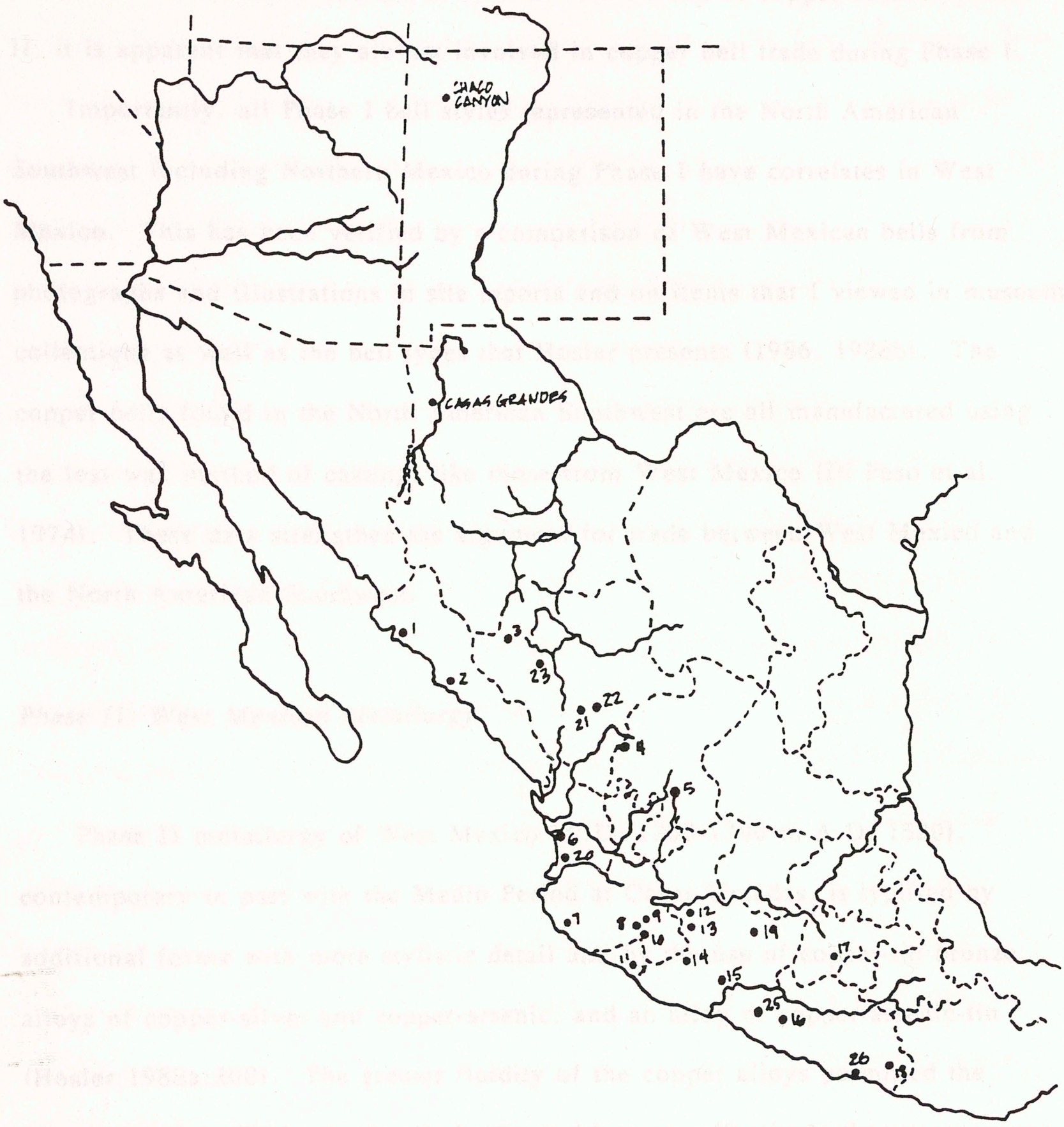
relationships between the North American Southwest and West Mexico and between Casas Grandes and other southwestern sites.

Phase I: West Mexican Metallurgy

Phase I metallurgy in West Mexico (A.D. 800 to A.D. 1200-1300) is characterized by a pure copper composition of the produced artifacts and/or slight amounts of arsenic in a copper-arsenic alloy (Hosler 1988a:207). Artifacts produced during Phase I include copper bells, needles, open rings, awls, and tweezers. The production techniques used in Phase I are cire perdu (lost-wax casting), open-mold casting, and cold work and annealing. Copper bells, also called crotals, were produced by the lost-wax method of casting and are in evidence throughout this phase in West Mexico (Hosler 1986).

West Mexican sites dating to Phase I include the Infiernillo sites on the Guerrero-Michoacan border, Tomatlan in Jalisco, Cojumatlan in Michoacan, and Amapa in Nayarit (Hosler 1988a:214). Although copper artifacts appear at Amapa, Nayarit possibly as early as A.D. 650, the adoption of copper metallurgy appears not to have become a regional phenomena until A.D. 800 (Hosler 1988b). There are literally thousands of sites in West Mexico, but only a handful have been confidently dated. Therefore, the specific sites listed in this chapter are those which Hosler identifies in her study of West Mexican metallurgy (see Figure 3.1).

The earliest dated appearance of copper artifacts in the North American Southwest is around A.D. 900 from the Sacaton phase Hohokam sites (Sprague and Signori 1963). This is considerably prior to the appearance of smelted copper artifacts at Casas Grandes, during the Medio Period (A.D. 1200-1250 to 1450-1500) which is concurrent with Phase II. Therefore, regardless of the



1. Guasave, Sinaloa
2. Culiacan, Sinaloa
3. Zape, Durango
4. Alta Vista, Zacatecas
5. La Quemada, Zacatecas
6. Amapa, Nayarit
7. Tomatlan, Jalisco
8. Tuxcacuesco, Jalisco
9. Zapotitlan, Jalisco
10. Sayula-Zacoalco, Jal.
11. El Chanal, Colima
12. Cojumatlan, Mich.
13. Jiquilpan, Michoacan
14. Tepalcatepec, Mich.
15. Apatzingan, Mich.
16. Middle Rio Balsas
17. Calixtlalinaca, Mex.
18. Texmilincan, Guer.
19. Tzintzuntzan, Mich.
20. Tepic, Nayarit
21. Schroeder Site, Dur.
22. Navocoyan, Durango
23. Hervideros, Durango
25. Infiernillo
26. Bernard, Guerrero

Figure 3.1

West Mexican Sites Discussed in Text

position of the Casas Grandians in relation to the trade of copper bells in Phase II, it is apparent that they are not involved in copper bell trade during Phase I.

Importantly, all Phase I bell styles represented in the North American Southwest including Northern Mexico during Phase I have correlates in West Mexico. This has been verified by a comparison of West Mexican bells from photographs and illustrations in site reports and on items that I viewed in museum collections as well as the bell types that Hosler presents (1986, 1988b). The copper bells found in the North American Southwest are all manufactured using the lost-wax method of casting, like those from West Mexico (Di Peso et al. 1974). These data strengthen the argument for trade between West Mexico and the North American Southwest.

Phase II: West Mexican Metallurgy

Phase II metallurgy of West Mexico (A.D. 1200-1300 to A.D. 1520), contemporary in part with the Medio Period at Casas Grandes, is typified by additional forms with more stylistic detail and by the use of copper-tin bronze, alloys of copper-silver and copper-arsenic, and an alloy of copper-arsenic-tin (Hosler 1988a:208). The greater fluidity of the copper alloys permitted the heated metal to fill in the details in the molds more effectively than pure copper, allowing for a greater diversity of bell types with more complex designs (Hosler 1988a:195). Thinner walls in bells and a more symmetrical product were also possible by this process. However, Phase I copper artifact forms and the use of pure copper did not disappear in Phase II; the repertoire was simply expanded with the use of alloys. The new alloyed forms include shell tweezers, loop-eye needles, thin rings, cutting tools, and thin walled simulated wirework bells (Hosler 1988a:209, 214).

The use of alloys also permitted a range of colors in the final products. Pure copper is characterized by a reddish-orange hue, but when alloyed with a large amount of arsenic a silvery white color is produced. Copper alloyed with a large amount of tin produces a golden hue (Hosler 1986:93). Color as well as design of metal products could have become extremely important in West Mexican society (Hosler 1986:95).

The advent of the use of alloys in Phase II and the changes in technology and design that followed centered around the southeast portion of West Mexico, including western Guerrero, the highlands of Michoacan (the Tarascan area), and the southern portion of the state of Mexico (Hosler 1988a:208). Sites identified as having Phase II materials in this area include Apatzingan, Cojumatlan, Tizapan el Alto, and Tzintzuntzan in Michoacan, Bernard in Guerrero, and at La Vilita and Infiernillo on the Guerrero-Michoacan border (Hosler 1988a:208). Culiacan and Guasave in Sinaloa date to Phase II, but do not have characteristic Phase II alloy materials; the metal artifacts from these two sites are composed of unalloyed copper. Amapa, Nayarit, bridges Phase I and Phase II temporally but only has unalloyed copper materials (Hosler 1988a:214). Phase II metallurgy is most conspicuous in the Tarascan region of Michoacan and surrounding areas (Hosler 1988a:215).

As in Phase I, the copper bell styles found in the North American Southwest during Phase II, including Casas Grandes, all have correlates in West Mexico. The changes in the technology of copper metallurgy beginning in Phase II are reflected by a subsequent appearance of some of these more detailed styles (such as the simulated wirework designs) at the southwestern sites. Therefore, the conclusion that West Mexico was the production center for copper bells found in

the North American Southwest is supported by both sylistic and temporal considerations.

Conclusions

This chapter has shown that West Mexico is the most likely source of the copper bells found at sites in the North American Southwest, including Northern Mexico. The technological chronology presented by Hosler (1986) provides a useful analytic tool for interpreting the hypothesized copper bell trade and exchange between West Mexico and the North American Southwest. In addition, since Phase II is contemporary with the Medio Period at Casas Grandes, separating sites by contemporaneity with Phase I and Phase II effectively delineates the southwestern sites in North America which could and could not have been trading with Casas Grandes based on temporal considerations. This facilitates a more precise analysis of the distributional data and allows for an evaluation of Paquime's position in copper bell trade. If the inhabitants of Paquime were not producing copper bells, were they then a major node in the trade of these goods, acquiring them from West Mexico and then trading them northward? Chapter 6 deals with this question in the analysis of distributional patterns of bell styles in the North American Southwest based on Phase I or Phase II temporal assignments.

This chapter has evaluated copper bell metallurgy in West Mexico and finds that this area is the most likely origin of the copper bells found in the North American Southwest. The implications of this proposal center on the possible relationships existing between these two regions. Was the trade down-the-line, from neighboring community to neighboring community? Or, was trade direct, and if so, what was the nature and consequences of this contact on local socio-

political processes in the North American Southwest? Was the trade directed to particular sites in the Southwest, causing concentrations at these sites, or are the copper bells distributed relatively evenly between sites? If copper bells are concentrated at particular sites in the North American Southwest, did the inhabitants or certain individuals then distribute some of these bells to other southwestern sites? What is the intrasite distribution of these bells, both at these centers and the sites which they distributed the bells to? Is restricted access reflected within the sites? What would be the social implications of this? Answering the question of probable origin of the bells instigates further questioning as to the nature of this trade and provides interesting directions for investigation, which are addressed in the analyses and interpretations of the distributional data in Chapters 6 and 7. Chapter 4 introduces the copper bell typology used in this study and presents the distributional data of copper bells in the North American Southwest which the analyses are based on.

Chapter 4

An Inventory and Typology of Copper Bells in the North American Southwest

This chapter will present the typology of copper bells designed by Pendergast (1962a) with the additions by Sprague and Signori (1963) and myself which are used in this study. Only those bell types which occur in the North American Southwest, including North Mexico are described and illustrated. In addition, the updated distributional data are introduced and the methodology of the data collection is summarized. There has not been a systematic update of this data base since Sprague's (1964) additions and corrections article of the Sprague and Signori (1963) original inventory, although both inventories are widely cited in articles considering Southwest/Mesoamerican interaction. I also expand Sprague and Signori's (1963) format by including intrasite provenience and context information when available. The categories of provenience and context were added with the hopes that the intrasite distribution of copper bells might indicate patterns of clustering or dispersal within sites and similarity in contexts among sites. Unfortunately, this information is not available for many of the copper bells documented. However, some tentative conclusions and observations based on the available evidence are made in Chapter 5.

The Southwestern Copper Bell Typology

Pendergast's (1962a) metal bell typology forms the base of the typology used for this study. Since its publication, however, many more bells have been located in the North American Southwest and Mesoamerica necessitating an expansion of the typology to avoid lumping distinct bell types under an inclusive

assignment. Most new additions to the typology were made based on a multiple examples of a distinct type.

For the purposes of this study, only those bell types which appear in the North American Southwest are described and illustrated. With the discovery of thousands of bells in Mesoamerica and the North American Southwest, it has become apparent that an entire re-evaluation of the existing typology will become necessary in the future. A statistical study of the cluster analysis of traits would be the best indication of differentiation. In addition, the proposed typology should include all bell types from Mesoamerica and the North American Southwest and be constructed in such a way to facilitate the addition of new types as needed.

Only bells which are produced by cire perdu (the lost-wax method) are included in this study. Bells made by the lost-wax method of casting are often referred to as crotals. Thus, copper tinklers, cold-worked from a sheet of copper from an open mold, also present in the North American Southwest are not included in this typology and inventory.

Table 4.1 describes each bell type used in this study. When no counterpart of a Pendergast type (1962a) can be identified for the North American Southwest, it is excluded. Therefore, the sequence of numbering may be interupted. For example, in Table 4.1 Pendergast's type IA3a is not found in the North American Southwest and therefore is excluded, resulting in the sequence moving from type IA2a to IA4a. An asterisk (*) next to the type assignment in Table 4.1 indicates that it is a type that I have added. Examples of the bell types are illustrated in Figure 4.1.

Table 4.1

Southwestern Copper Bell Typology

(see Figure 4.1 for bell type illustrations)

Bell Type	Description
IA1a-i	Globular bell roughly symmetrical with a smooth body surface and a plain appendicle ring.
IA2a	Globular bell, roughly symmetrical with a smooth body surface, plain appendicle ring, and a raised lip around the resonator mouth opening.
IA4a	Globular bell, roughly symmetrical with the resonator body covered in simulated wirework, and a plain appendicle ring.
IA5a	Globular bell, roughly symmetrical with a smooth body surface, plain appendicle ring, and a raised Tlaloc face represented on the resonator body.
IA6a	Globular bell, roughly symmetrical with a smooth body surface, plain appendicle ring, and a raised zoomorphic or stylized design on resonator body.
IB1a	Flattened globular body shape with a smooth resonator body surface and a plain appendicle ring.
IB2a	Flattened globular bell shape with a smooth body surface and a raised horizontal band on the shoulder portion of the resonator body just below where the plain appendicle ring attaches.
IC1a	Pear shaped bell, smooth body surface, and a plain appendicle ring.
IC1b	Pear shaped bell, smooth body surface, and a double appendicle ring.
IC1c	Pear shaped bell, smooth surface, and a flat, straplike appendicle ring.
IC2a	Pear shaped bell, simulated wirework covering upper 1/3 to 1/2 of resonator body. Lower resonator body is smooth. Plain appendicle ring.
IC6a	Large pear shaped bell with a flat platform at the top of the bell which supports a heavy strap-like appendicle half-ring. The platform is decorated with a raised spiral design. The shoulder of the bell is decorated with incised lines, the pattern of which varies

bell to bell, although the design depicted in Figure 4.1 is quite common. The resonator body is otherwise smooth.

IC7a — See IC14a also. Small pear-shaped bell with a small horizontal band running around the top of the resonator where the plain appendicle ring attaches. This is most likely a Type IC14a which has had a hole drilled completely through the resonator body at some time after the bell was produced.

IC8a* — Similar in overall morphology to Type IC6a, except the shoulder band is without incising, and the platform is also undecorated.

IC9a* — Pear shaped bell, smooth body with the exception of two horizontal raised bands running around the resonator body, one at the shoulder of the bell body, and one at the hip of the bell body which is flush with the top edge of the mouth opening. Plain appendicle ring.

IC10a* — Pear shaped bell, smooth body except for a raised horizontal band running around the bell at the shoulder. Plain appendicle ring.

IC11a* — Pear shaped bell, smooth body except for a raised horizontal band running around the bell at the shoulder and a wavy raised design running down the face of the resonator body. Plain appendicle ring.

IC12a* — Pear shaped bell, with simulated wirework covering the resonator body and a raised horizontal band running around the bell at the shoulder. Plain appendicle ring.

IC13a* — Pear shaped bell, with simulated wirework covering the resonator body. Plain appendicle ring.

IC14a* — Small pear shaped bell with a horizontal band running around the top of the bell where the plain appendicle ring attaches to the resonator.

IC15a* — A large pear shaped bell with a smooth resonator body. The bell is topped by a flat platform with a spiral design on it. The appendicle is a flat strap-like half ring. The mouth ends are usually squared off. Very similar to IC6a and IC8a in overall morphology.

IC16a* — Pear shaped bell with upper half of resonator body banded off by two horizontal raised bands running around the bell, one at the top of the bell and one midway down the body of the bell. Lying between the the bands is an incised design which may vary in design elements and arrangement from bell to bell. Plain appendicle ring.

IC17a* — Pear shaped bell with simulated wirework covering the resonator body. A horizontal band runs around the top of the bell where

	the appendicle ring attaches to the body of the bell. Raised lip around the mouth opening which can be squared off at its upper ends (Figure 4.1). or can be rounded off at the ends. Plain appendicle ring.
IC18a*	Pear shaped bell with a smooth resonator body except for a raised lip around the mouth opening which can be half-round or squared off. Plain appendicle ring.
IC19a*	Pear shaped bell with the lower portion of the bell body smooth and the upper half portion banded off into two sections with three horizontal bands running around the bell: one where the plain appendicle ring joins the body, one at the shoulder, and one at the waist. The areas between the bands are incised usually in a grid pattern.
IC20a*	Pear shaped bell with two raised horizontal bands running around the bell, one at the top of the bell where the appendicle attaches to the resonator body, and the other midway down the bell body. Between the two bands is a raised woven design. The lower half of the resonator body, beneath the lower band, is smooth. Plain appendicle ring.
ID1a	Tear shaped (all tear shaped forms are more elongated than the above pear shaped variety) with a smooth resonator body and a plain appendicle ring.
ID2a	Tear shaped bell with a smooth body except for a raised lip around the mouth opening. Plain appendicle ring.
ID4a	Tear shaped bell with simulated wirework covering the top 3/4 of the bell body. The simulated wirework extends to the upper edge of the mouth. Plain appendicle ring.
ID5a	Tear shaped bell with simulated wirework covering the resonator body. Plain appendicle ring.
ID6a	Tear shaped bell with simulated wirework covering the top 3/4 of the bell body. The lower 1/4 is smooth. There is a raised design on the bell body which varies in elements and composition from bell to bell. Plain appendicle ring.
ID9a*	Tear shaped bell with simulated wirework covering the resonator body with a raised horizontal band running around the hip of the bell, flush with the upper end of the mouth opening. Bisecting this hip band is a raised lip around the remaining portion of the mouth forming a squared off mouth end. Plain appendicle ring.
ID10a*	Tear shaped bell with simulated wirework covering the resonator body with the same bisecting raised hip and lip with a squared mouth opening as described for ID9a. There is also a raised

Table 4.1 Continued

	"lightning-bolt" design on the upper portion of the bell. Plain appendicle ring.
IE2	Turtle effigy bell. Design elements may vary but it is most commonly covered on the shell by a complex interlocking false filligree design. The turtle's tail probably wrapped around to form the suspension ring, but it is broken off on the known examples.
IE3a*	Rodent effigy bell. The mouth of the "mouse" forms the bell mouth and its tail wraps around to form the suspension ring. Facial features are clearly marked.

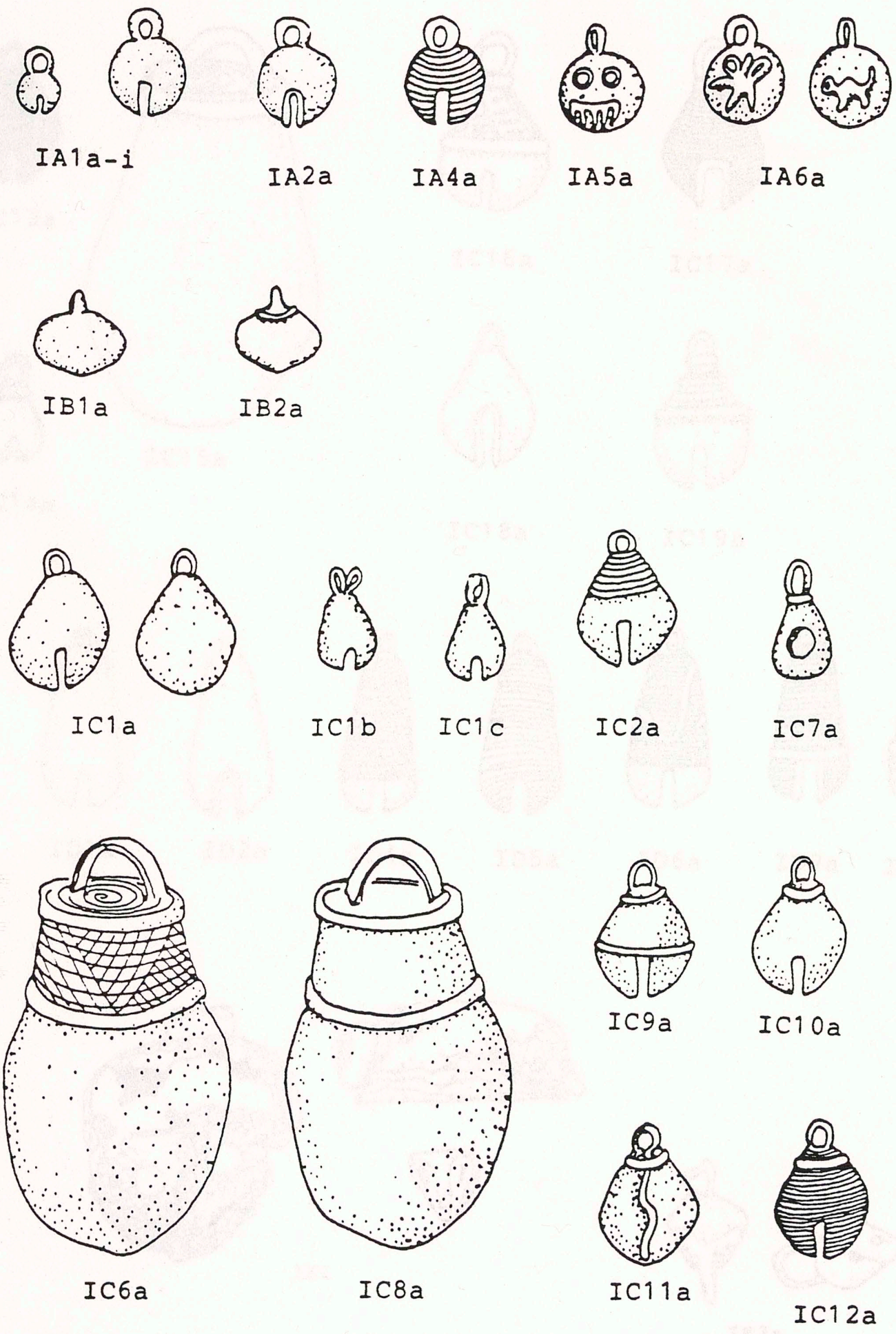
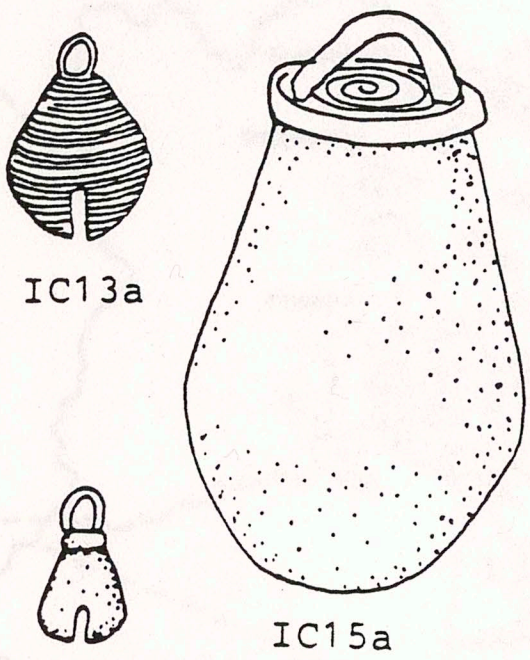
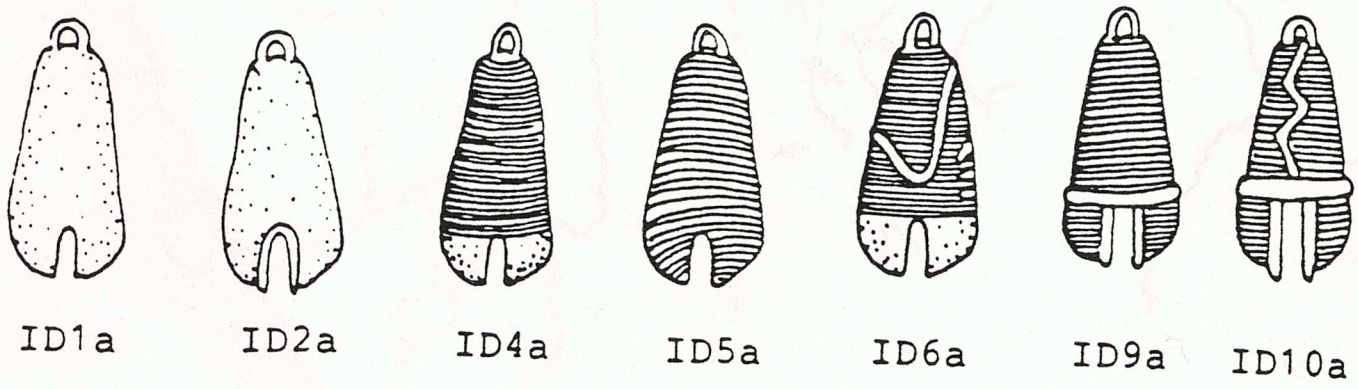


Figure 4.1: Southwestern Copper Bell Typology

(See Table 4.1 for descriptions of each type)





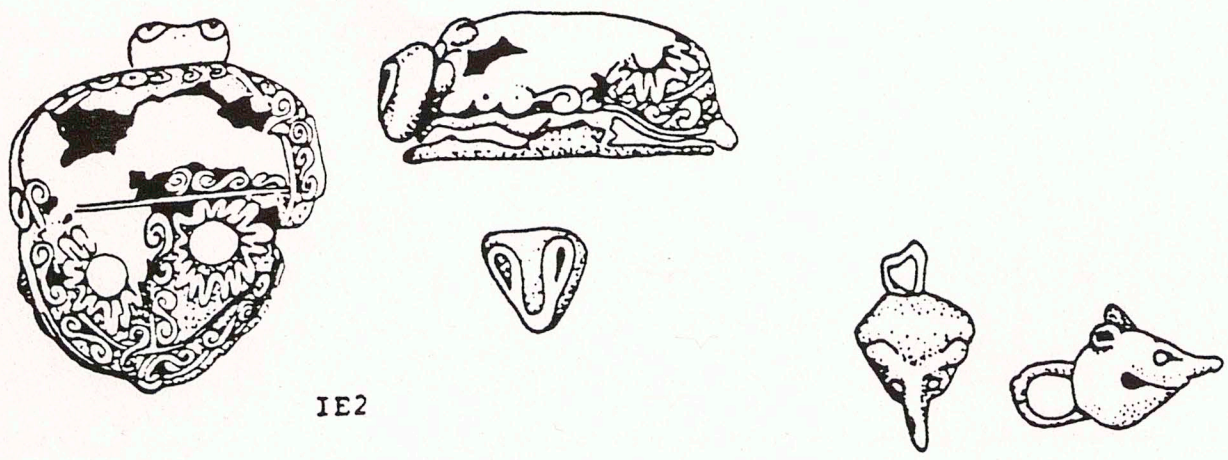


Figure 4.1 Continued

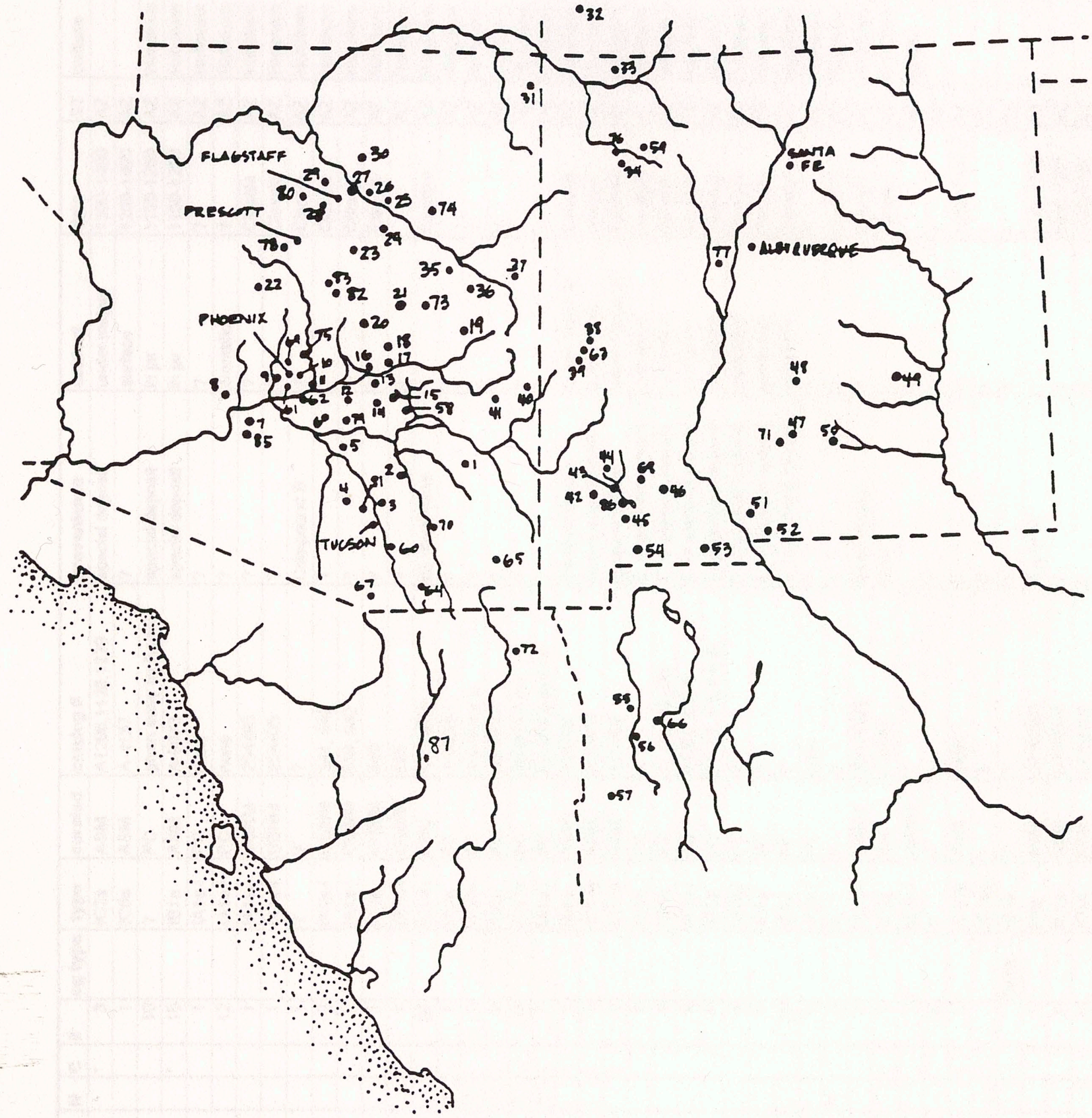


Figure 4.2: Distribution of Copper Bells at Southwestern Sites

Numbers refer to sites (see Table 4.2 for site names)

Table 4.2: Inventory of Copper Bells in the Southwest

map	site name...	N	C	#	cg type	type	curated	catalog #	provenience	context	date	ST	culture	S&N
1	76 Ranch		*	3		IC2a	ASM	A1206,1128,1229	special deposit	under metate	1300-1400	AZ		1
2	Mammoth (Big Bell)			1		IC6a	ASM	A-4137	?	surface	1200-1400	AZ		104
3	Romo Site			10		?	PC	given away by Romo	special deposit	in jar	1150-1250	AZ	Hohokam	157
3	Romo Site		*	15		IB1a	ASM	A-9073	special deposit	in jar	1150-1250	AZ	Hohokam	158
4	Marana			1		IA1a-i	PC	none	?	?	?	AZ	Hohokam	106
4	Marana			12		IA1a-i	PC	none	?	cremation	?	AZ	Hohokam	107
5	Casa Grande			1		IA1a-i	USNM	254495	?	?	Classic	AZ	Hohokam	14
5	Casa Grande			1		IA1a-i	USNM	254495	?	?	Classic	AZ	Hohokam	15
5	Casa Grande			1		?	?	?	Compound B	?	Classic	AZ	Hohokam	16
5	Casa Grande			2		IA1a-i	CGNM	541, 543	?	?	Classic	AZ	Hohokam	17
5	Casa Grande			2		IA1a-i	CGNM	539, 542	?	?	Classic	AZ	Hohokam	18
5	Casa Grande			1		IC1a	CGNM	540	?	?	Classic	AZ	Hohokam	19
5	Casa Grande Area			1		IA1a-i	CGNM	535	?	?		AZ	Hohokam	20
6	Snaketown		*	28		IC14a	ASM	GP44679	#8 storehouse	?	Sacaton	AZ	Hohokam	175
7	Gatlin Area	**		1		IA2a	PC	JH-003-f	?	?	?	AZ	Hohokam	119
7	Gatlin Area	**		2		IC16a	PC	JH-003-a,b	?	?	?	AZ	Hohokam	120
7	Gatlin Area	**		2		ID2a	PC	JH-003-n	?	?	?	AZ	Hohokam	121
7	Gatlin Area	**		3		IC17a	PC	JH-003-c,d,e	?	?	?	AZ	Hohokam	122
7	Gatlin Area	**		7		IA1a-i	PC	JH-003-g thru m	?	?	?	AZ	Hohokam	123
7	Gatlin Site		*	1		IB1a	ASM	A21402	Platform Mound	below Stage VI	Sacaton	AZ	Hohokam	65
7	Gatlin Site		*	1		IC14a	ASM	A21404	house near platform	burned roof	Sacaton	AZ	Hohokam	66
7	Gatlin Site		*	1		IC14a	ASM	A21403	platform mound	below Stage VI	Sacaton	AZ	Hohokam	67
7	Gatlin Site			1		IC1b	PC	A	E. of platform mound	cremation	Sacaton	AZ	Hohokam	68
7	Gatlin Site			4		IC7a	PC	C, D1, D2, D3	E. of platform mound	cremation	Sacaton	AZ	Hohokam	69
7	Gatlin Site			4		IA1a-i	PC	E1,E2, E3, G	E. of platform mound	cremation	Sacaton	AZ	Hohokam	70
7	Gatlin Site			4		IC1a	PC	F1, F2, F3, F4, B	E. of platform mound	cremation	Sacaton	AZ	Hohokam	71
7	Gatlin Site			4		IA1a-i	PC	?	E. of platform mound	cremation	Sacaton	AZ	Hohokam	72
7	Gatlin Site			1		IC1a	PC	?	E. of platform mound	cremation	Sacaton	AZ	Hohokam	73
7	Gatlin Site			35		IC1a	PC	?	E. of platform mound	cremation	Sacaton	AZ	Hohokam	74
8	Homestead Site			1		IA1a-i	PC	none	?	?	?	AZ	Hohokam	88
10	Pueblo Grande	**		2		?	?	?	?	?	Civano?	AZ	Hohokam	149
10	Pueblo Grande			1		IA1a-i	AMNH	29.1/7323	trash mound	?	Civano?	AZ	Hohokam	150
11	Los Hornos		*	1		IC2a	PM	c-4270	Ruin 7	?	Classic	AZ	Hohokam	101
12	Togetzoge			1		IA1a-i	AMNH	?	?	?		AZ	Salado	178
13	Hilltop House			6		?	?	?	?	?	?	AZ		85
13	Hilltop House		*	1		IC11a	ASM	5458	?	?	1250-1300	AZ		86
14	Miami Area					IA1a-i	?	?	?	?	?	AZ		112
14	Miami Area				IIA1a	IC1a	?	?	?	?	?	AZ		113
15	Gila Pueblo			1		frag	ASM	GP42268	Room 96	?	1345-1385	AZ		75
15	Gila Pueblo			1		IC1a	ASM	GP49336	?	?	1345-1385	AZ		76
15	Gila Pueblo			1		ID1a	ASM	GP52853	?	?	1345-1385	AZ		77

15	Gila Pueblo			1		IA1a-i	?	?	?	?	1345-1385	AZ		78
15	Gila Pueblo		*	8		IC12a	ASM	GP53143-x	?	?	1345-1385	AZ		79
15	Gila Pueblo			7		IC10a	ASM	GP53143-x	?	?	1345-1385	AZ		80
15	Gila Pueblo		*	1		IC8a	ASM	GP8743	Room 42	?	1345-1385	AZ		89
15	Gila Pueblo			20		IA1a-i	ASM	GP7323	?	?	1345-1385	AZ		90
16	Roosevelt Lake Area			2		IA1a-i	PC	none	?	burial	?	AZ	Hohokam	163
16	Roosevelt Lake Area		*	1		IC15a	PC	JH-001	?	?	?	AZ	Hohokam	164
17	Armour's Ranch			1		?	lost	?	mound	?	?	AZ		5
18	Livingston Ruin		*	2		IB2a	lost	?	?	?	?	AZ	Hohokam	100
19	Kinishba			1		?	ASM	25200	?	?	1300	AZ		92
19	Kinishba		*	1		IA1a-i	ASM	7302	?	?	1300	AZ		93
20	Roosevelt Lake 5:10			1		IC1a	ASM	GP11470-1	?	burial 56		AZ	Hohokam	160
20	Roosevelt Lake 5:10		*	1		IC10a	ASM	GP11470-2	on the shore of lake	surface	?	AZ	Hohokam	161
20	Roosevelt Lake 5:10			1		IC1a	USNM	173068	?	?	?	AZ	Hohokam	162
21	Cherry Creek	**		1		IE2	PC	JH-002-a	?	?	1300-1400	AZ		42
21	Cherry Creek	**		1		IE3a	PC	JH-002-b	?	?	1300-1400	AZ		43
21	Cherry Creek	**		1		ID9a	PC	JH-002-f	?	?	1300-1400	AZ		44
21	Cherry Creek	**		1		IA4a	PC	JH-002-i	?	?	1300-1400	AZ		45
21	Cherry Creek	**		2		frag	PC	JH-002-g,h	?	?	1300-1400	AZ		46
21	Cherry Creek	**		3		IC13a	PC	JH-002-c,d,e	?	?	1300-1400	AZ		47
21	Cherry Creek	**		2		IC1a	PC	JH-002-j,k	?	?	1300-1400	AZ		48
21	Cherry Creek	**		1		IC10a	PC	JH-002-l	?	?	1300-1400	AZ		48
21	Q Ranch	**		6		?	?	?	?	burial	1300-1400	AZ	Mogollon	155
21	Young, AZ. Area			1	IA1a	IA1a-i	SWM	780-G-15	?	?	?	AZ		196
22	Prescott Area			4		IA1a-i	PGM	Smith Collection	?	?	?	AZ		134
23	Chavez Pass			1		IA1a-i	USNM	157839	?	?	AD 1381	AZ		41
24	Pollock Site			2		IA1a-i	MNA	1520/NA4317B3.7&8	?	?	1243-1303	AZ		132
25	Copper Bell Ruin			5		IA1a-i	MNA	273/A.1223	?	burial-child	1120-1200	AZ	Anasazi	51
26	Winona Village Ruin			1		IC2a	MNA	923/NA2131X	trash mound	?	?	AZ		186
27	N.A. 627			1		IA1a-i	MNA	627/A.235	?	?	?	AZ		116
28	Flagstaff Area			1		IA1a-i	MNA	1116/A.923	?	?	1120-1200	AZ		58
29	Canyon de Flag			2		IA1a-i	ASM	GP9076	?	?	PIII	AZ		13
30	Wupatki			1		IA1a-i	WNMM	116	?	?	?	AZ		187
30	Wupatki			1		frag	MNA	621/NA405R66A.7f	?	?	?	AZ		188
30	Wupatki			1		frag	MNA	1025/NA405.M246	?	?	PIII	AZ		189
30	Wupatki			1		?	SWAC	W 394	Room 40	?	?	AZ		190
30	Wupatki			1		frag	SWAC	W 395	Room 40	?	?	AZ		191
30	Wupatki			1		IC1a	SWAC	W 396	Room 70	?	?	AZ		192
30	Wupatki			1		IA5a	lost		near Ruin A	burial	?	AZ		193
30	Wupatki			3		IA1a-i	MNA	621/NA405.B221	?	burial-adult	1120-1200	AZ		195
31	Red Rock Area			1		IA1a-i	BM	4144	?	?	?	AZ		156
32	Goodman Point		*	1		IA1a-i	?	?	E. of ctr. of mound	burial	PII-III	CO	Anasazi	83

Table 4.2: Continued

33	Aztec Ruin Area			1		IA1a-i	MNM	31425/11	?	?	PIII	NM	Anasazi	6
33	Aztec, West Ruin			1		IA1a-i	?	?	Room 64, north wing	refuse	1110-1121	NM	Anasazi	7
34	Casa Riconada			3		frag	MNM	?	?	?		NM		21
34	Pueblo Bonito			1		IC1a	AMNH	7081	Room 83		?	NM	Anasazi	136
34	Pueblo Bonito			3		frag	AMNH	H-1274	Room 179	?	828-1130	NM	Anasazi	137
34	Pueblo Bonito			1		IA1a-i	AMNH	H-12746	Room 127	?	?	NM	Anasazi	138
34	Pueblo Bonito			1		frag	AMNH	H-12750	Room 150	?	?	NM	Anasazi	139
34	Pueblo Bonito			1		frag	AMNH	?	Room 168	?	?	NM	Anasazi	140
34	Pueblo Bonito		•	1		IC14a	AMNH	12754	Room 106	?	?	NM	Anasazi	141
34	Pueblo Bonito			1		IA1a-i	AMNH	H-12755	Room 106	?	?	NM	Anasazi	142
34	Pueblo Bonito			3		IA1a-i	USNM	335581	?	?	?	NM	Anasazi	143
34	Pueblo Bonito		•	2		IC14a	USNM	335582, 335583	Room 229	?	?	NM	Anasazi	144
34	Pueblo Bonito			1		IA1a-i	USNM	335584	?	?	?	NM	Anasazi	145
34	Pueblo Bonito			1		?	USNM	335586	?	?	?	NM	Anasazi	146
34	Pueblo Bonito			1		frag	USNM	335587	?	?	828-1130	NM	Anasazi	147
34	Pueblo Bonito			1		frag	USNM	?	?	?	?	NM	Anasazi	148
34	Pueblo del Arroyo			2		frag	USNM	334766, 334767	?	?	1052-1101	NM	Anasazi	151
34	Pueblo del Arroyo			2			USNM	334763, 334765	?	?	1052-1101	NM	Anasazi	152
34	Pueblo del Arroyo			1		?	USNM	334764	?	?	1052-1101	NM	Anasazi	153
35	Four Mile Ruin	•		1		IB2a	USNM	177804	cemetery N.of pueblo	burial	1300-1400	AZ		60
37	Babbitt Ranch			1		IA1a-i	MNA	1117/A.2421	?	?	?	AZ		8
38	Upper San Fran. R.			1		?	USNM	98211	?	?	?	NM		182
39	Delgar Ruin		•	1		IC6a	USNM	170547	?	?	?	NM		54
39	Delgar Ruin			1		?	lost	none	?	?	?	NM		55
40	Foote Canyon Pueblo			1		ID1a	CNHM	?	?	?	?	AZ		59
41	Point of Pines Ruin			3		IA1a-i	ASM	A5271,12034,7223	?	?	?	AZ		130
41	Turkey Creek Site			2		IA1a-i	ASM	A17855, 17856	?	?	?	AZ		180
41	Turkey Creek Site			6		IA1a-i	ASM	A20486	?	burial 222	?	AZ		181
42	Cameron Creek		•	1		IA1a-i	MNM	27135/11	?	burial	Classic	NM	Mogollon	12
43	Galaz Ruin		•	1		IC1c	?	?	Room 4	burial #2	cl.mimbrs	NM	Mogollon	61
43	Galaz Ruin			1		IA1a-i	?	?	Room SWM-D	under floor	cl.mimbrs	NM	Mogollon	62
43	Galaz Ruin			1		?	lost	none	?	?	?	NM	Mogollon	63
43	Galaz Ruin		•	1		IC1a	?	?	Room SWM-D	under floor	cl.mimbrs	NM	Mogollon	64
44	Mattocks Ruin			1		IA1a-i	LM	16336	"middle period" room	burial	1100-1200	NM	Cl.Mimbrs	108
45	Old Town			1		IA1a-i	MNM	42719/11	?	?	1050-1200	NM	Mogollon	126
46	Russell Grove		•	1		IC10a	MNM	27125/11	?	?	?	NM	Mogollon	165
47	Alamogordo			2		?	?	?	?	?	1000-1130	NM		2
48	Three Rivers			1		frag	?	?	?	?	1310-1330	NM		177
49	Bloom Mound			3		?	?	?	?	?	1300-1400	NM	Mogollon	10
49	Bloom Mound		•	3		IC1a	RMAC	?	Room C	2nd floor	1300-1400	NM	Mogollon	11
49	Bloom Mound		•	1		IC10a	RMAC	?	Room C	2nd floor	1300-1400	NM	Mogollon	11
50	Cox Ranch		•	1		IA4a	UNM	497-k	?	?	?	NM		52

Table 4.2: Continued

50	Cox Ranch		•	1		IB2a	UNM	498-k	?	?	?	NM		53
51	Las Cruces		•	?		IA1a-i	PC	none	?	?	El Paso	NM	Mogollon	99
52	Dona Ana Target Rng			1		IA1a-i	?	?	?	?	?	NM		56
53	Mt. Riley Area		•	1		IB1a	MNM	6398/11	?	surface	1000-1130	NM		115
54	Osborn Ruin			1		IA1a-i	MNM	42716/11	?	burial	1000-1130	NM	Mogollon	127
54	Osborn Ruin		•	1		IC14a	MNM	42718/11	?	burial	1000-1130	NM	Mogollon	128
54	Osborn Ruin			8		IA1a-i	MNM	27126-33	?	burial	?	NM	Mogollon	129
55	Casas Grandes			2		IC2a	ASM	GP4479	?	?	Medio	CH	Casas G.	23
55	Casas Grandes		•	1		IC13a	PM	c-4018	?	?	Medio	CH	Casas G.	36
55	Casas Grandes			45	IA1a	IA1a-i	INAH	see notes	Room 9C-8	fill, trove	Medio	CH	Casas G.	201
55	Casas Grandes			1	ID1a	IA6a	INAH	CG/1307o	Room 9C-8	fill, trove	Medio	CH	Casas G.	202
55	Casas Grandes			1	IIB1a	IC2a	INAH	CG/1307kk	Room 9C-8	fill, trove	Medio	CH	Casas G.	203
55	Casas Grandes			31	IIE1a	IC13a	INAH	see notes	Room 9C-8	fill, trove	Medio	CH	Casas G.	205
55	Casas Grandes			1	IA1a	IA1a-i	INAH	CG/1340	Room 10B-8	floor fill	Medio	CH	Casas G.	206
55	Casas Grandes		•	1		IC18a	INAH	CG/3837	Room 12-13	floor	Medio	CH	Casas G.	208
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/6386	Room 12-16	fill	Medio	CH	Casas G.	209
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/1428	Room 14B-8	fill	Medio	CH	Casas G.	210
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/4263	Room 15-13	floor	Medio	CH	Casas G.	211
55	Casas Grandes			3	IIE1a	IC13a	INAH	CG/1820A,B,C	Room 16B-8	fill	Medio	CH	Casas G.	212
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/4262	Room 17-13	fill	Medio	CH	Casas G.	214
55	Casas Grandes			1	IC1a	IA5a	INAH	CG/6076	Room 18-16	floor	Medio	CH	Casas G.	215
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/2075	Room 21C-8	fill	Medio	CH	Casas G.	217
55	Casas Grandes			1	IIA1a	IC1a	INAH	CG/6886	Room 23-16	fill, trove	Medio	CH	Casas G.	219
55	Casas Grandes			2	IIE1a	IC13a	INAH	CG/3552, CG/6579	Room 32-12	fill	Medio	CH	Casas G.	220
55	Casas Grandes			1	IIB1a	IC2a	INAH	CG/8115	Room 33-8	fill	Medio	CH	Casas G.	221
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/7840	Room 33-16	fill	Medio	CH	Casas G.	222
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/8300	Room 42-8	fill	Medio	CH	Casas G.	224
55	Casas Grandes			1	IIB1a	IC2a	INAH	CG/8341	Room 43-8	fill	Medio	CH	Casas G.	226
55	Casas Grandes			1	IA1a	IA1a-i	INAH	CG/8357	Room 44B-8	floor A	Medio	CH	Casas G.	227
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/8356	Room 44B-8	floor A	Medio	CH	Casas G.	228
55	Casas Grandes			1	IA1a	IA1a-i	INAH	CG/326	Ballcourt 1,U3,S. end	fill	Medio	CH	Casas G.	229
55	Casas Grandes			1	IB1a	IA4a	INAH	CG/317	Ballcourt 1,U3,S.end	fill	Medio	CH	Casas G.	230
55	Casas Grandes			1	IIB1a	IC2a	INAH	CG/359	Ballcourt 1,U3,S.end	level A	Medio	CH	Casas G.	231
55	Casas Grandes			1	IIIA1a	IE2	INAH	CG/328	Ballcourt 1,U3,S.end	fill	Medio	CH	Casas G.	232
55	Casas Grandes			1	IA1a	IA1a-i	INAH	CG/1022	Plaza 2-6, East	fill	Medio	CH	Casas G.	235
55	Casas Grandes			1	IA1a	IA1a-i	INAH	CG/8205	Plaza 3-8, well stairs	fill	Medio	CH	Casas G.	236
55	Casas Grandes		•	1	IIC1a	IC20a	INAH	CG/8204	Plaza 3-8, well stairs	fill	Medio	CH	Casas G.	237
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/8256	Plaza 3-8, center	floor A	Medio	CH	Casas G.	238
55	Casas Grandes			1	IIB1a	IC2a	INAH	CG/812A	Plaza 3-8	fill	Medio	CH	Casas G.	240
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/8126B	Plaza 3-8	fill	Medio	CH	Casas G.	241
55	Casas Grandes			1	IID1	IC19a	INAH	CG/8270	Plaza 3-8, NW psgwy	floor A	Medio	CH	Casas G.	242
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/8243	Plaza 3-8	fill	Medio	CH	Casas G.	243

Table 4.2: Continued

Table 4.2: Continued

55	Casas Grandes			2	IIE1a	IC13a	INAH	CG/8383, CG/8384	Plaza 6-8	fill	Medio	CH	Casas G.	244
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/6576	East Plaza	?	Medio	CH	Casas G.	245
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/8447	U8,TT,Blk 108-D	?	Medio	CH	Casas G.	246
55	Casas Grandes Area	**		1		IA1a-I	MNM	27137/11	?	?	?	CH	Casas G.	24
55	Casas Grandes Area	**		1		IA1a-I	MNM	37073/11	?	?	?	CH	Casas G.	27
55	Casas Grandes Area	**		3		IC12a	INAH	12-1-730	?	?	?	CH	Casas G.	28
55	Casas Grandes Area	**		4		IA1a-I	INAH	12-1-731	?	?	?	CH	Casas G.	29
55	Casas Grandes Area	**		1		IC10a	ASM	A32125 x-1	?	cache	?	CH	Casas G.	33
55	Casas Grandes Area	**		1		IA1a-I	ASM	A32125 x-2	?	cache	?	CH	Casas G.	34
55	Casas Grandes Area	**		1		IA6a	ASM	A32125 x-3	?	cache	?	CH	Casas G.	35
55	Casas Grandes Area			1		ID5a	ASM	GP4479-lost	?	?	?	CH	Casas G.	22
55	Casas Grandes Area		*	1		ID5a	MNM	27136/11	?	burial	?	CH	Casas G.	25
55	Casas Grandes Area		*	37		IA1a-I	ASM	GP4479	?	?	?	CH	Casas G.	31
55	Casas Grandes Area		*	11		IA1a-I	MNM	41947/11	?	?	?	CH	Casas G.	32
55	Casas Grandes Area		*	1		IC10a	AMNH	30/5736	?	?	?	CH	Casas G.	37
55	Casas Grandes Area			1		IA1a-I	PM	4018	?	burial	?	CH	Casas G.	38
55	Casas Grandes Area			13		IA1a-I	USNM	324225	?	burial	?	CH	Casas G.	39
56	Rancho San Miguel		*	2		IC9a	PM	c-2693, c-2694	?	?		CH	Casas G.	171
57	Santana Ranch		*	1		IB1a	ASM	20729	plowed up in field	disturbed		CH	Casas G.	172
58	Globe Area			1		IC1a	PC	none	slope of Hog Mtn.	surface		AZ		82
59	Bis san'ani Ruin	**				?	?	?	chacoan kiva	in masonry wall	1100-1200	NM	Anasazi	9
60	Hodges Site			1		IA1a-I	?	?	?	?	?	AZ	Hohokam	87
61	Las Colinas	**		10		?	?	?	?	?	Classic?	AZ	Hohokam	98
62	Los Morteros	**		1		IC14a	PC	none	near pithouse,ballct.	burned?	1100-1200	AZ	Hohokam	102
62	Los Morteros	**		1		IA1a-I	ASM	?	Feature 1082	Compound Wall 2	1100-1300	AZ	Hohokam	103
63	Apache Creek			1		IA1a-I	MNM	7050/11	Room 6	fill	?	NM	Mogollon	4
64	Kuykendall Site			1		IC1a	PC	none	?	?	?	AZ		94
64	Kuykendall Site			1		frag	PC	none	?	?	?	AZ		95
64	Kuykendall Site			1		IC1a	PC	none	?	?	?	AZ		96
66	San Joaquin Canyon			12		IA1a-I	see notes	see notes	?	burial	Medio	CH	Casas G.	170
67	Webb Site			1		IC1a	PC	1257W	?	?	?	AZ		183
67	Webb Site			1		IA1a-I	PC	1257W	?	?	?	AZ		184
68	McSherry Ruin			1		IC1a	UCM	3277	Room 1	burial 22	?	NM		109
68	McSherry Ruin			1		IC1a	UCM	3254	Room 1	burial 9	?	NM		110
68	McSherry Ruin			2		IA1a-I	UCM	3254	Room 1	burial 9	?	NM		111
69	La Ciudad			2		IA1a-I	PC	none	refuse heap	burial-child	Classic	AZ	Hohokam	97
70	Alder Wash	**		1		?	?	?	pithouse	?	Sedentary	AZ	Hohokam	3
71	White Sands	**		1		?	?	?	pueblo ruins	?	El Paso	NM	Mogollon?	185
72	Ojo de Agua	**		1		IA1a-I	INAH	?	Quad 1, Level 1	room fill	Medio	SO		125
73	Grasshopper	**		3		IA1a-I	UA		Room 112, NE Quad.	fill over floor	1300-1400	AZ	Mogollon	84
74	Homolovi II	**		1		IC6a	ASM	PD756FS19	Room 557	on 2nd floor	1300-1400	AZ	Anasazi	91
75	Pinnacle Peak	**		1		IC7a	ASUM	FS#1290	Mound 3	Level 1	Sacaton	AZ	Hohokam	131

Table 4.2: Continued

76	Pueblo Alto	••		1		IC1a	NPSCP	FS# 35	Plaza 1-greathouse	fill of kiva	1040-1100	NM	Anasazi	135
77	Pottery Mound	••		1		IC18a	Maxwell	79.17.3	NW Quad-Level 6	plaza floor	PIV	NM	Anasazi	133
78	Sundown Site	••		2		IA1a-I	YCL	1259-94, 1259-95	?	burial-child	?	AZ		176
79	Maricopa Road Site	••		1		IC14a	?	?	Fea.19/trash fill pit	subsurface	1000-1100	AZ	Hohokam	105
80	Tse Tlani	••		1		IC1a	?	?	Pithouse 1,room3fill	storage pit 1	1100-1200	AZ	Sinagua	179
81	Rooney Ranch Site	••		1		IC14a	PCC	?	pithouse #1, burned	floor	1000-1150	AZ	Hohokam	159
82	Schoolhouse Mesa	••		1		IA1a-I	ASUM	25844	Feature 4 (midden)	Level 1	1060-1240	AZ	Salado	173
83	Copper Bell House	••		1		IA1a-I	SWM	383.G.79	kiva like structure	floor	?	AZ		50
85	Gillespie Dam Site	••		9		IA1a-I	lost	none	?	burial #3	1100-1200	AZ	Hohokam	81
86	Nan Ranch			1		IA1a-I	UT			burial-adult male	1000-1050	NM	Mimbres	247
86	Nan Ranch			1		frag	UT			floor-late structure	1100-1130	NM	Mimbres	248
86	Nan Ranch			1		frag	UT					NM	Mimbres	249
87	San Jose Baviacora	••		1		IA1a-I	INAH	?		burial	Medio	SO	Rio Sonora	250
	Chiracahua Mt. Area			?		?	?	?	?	?	?	AZ		118
	Edge of Cedars Ruin	••		3		?	?	?	?	?		UT		40
	Gila River Area	••		1		ID10a	PC	JH-021	?	?	?	AZ		124
	Mogollon Rim	••		1		ID4a	ASM	A36805	?	?	?	?	Mogollon?	114
	Pueblo del Monte	••		1		?	?	?	from a room	?	Civano	AZ	Hohokam	154
	Salt River Valley			1		IC6a	lost		?	?	?	AZ	Hohokam	166
	Salt River Valley			1		ID2a	?	?	?	?	?	AZ	Hohokam	167
	Salt River Valley			1		ID4a	?	?	?	?	?	AZ	Hohokam	168
	Salt River Valley			1		ID6a	?	?	?	?	?	AZ	Hohokam	169
	Tubuc State Park Area	••		3		?	PSPM		?	?	?	AZ	?	251

Key to Museum Abbreviations:

AMNH=American Museum of Natural History, New York, New York
ASM=Arizona State Museum, Tucson, Arizona
ASUM=Arizona State University Museum, Tempe, Arizona
BM=Brooklyn Museum, Brooklyn, New York
CGNM=Casa Grande National Monument Museum, Coolidge, Arizona
CNHM=Chicago Natural History Museum, Chicago, Illinois
INAH=Institute Nacional de Antropologia y Historia, Mexico
LM=Logan Museum, Beloit College, Beloit, Wisconsin
Maxwell=Maxwell Museum of Anthropology, Albuquerque, New Mexico
MNA=Museum of Northern Arizona, Flagstaff, Arizona
NPSCP=National Park Service Chaco Project, Santa Fe, New Mexico
PC=Private Collection (See Notes and Sources for owner's name)
PCC=Pima Community College, Tucson, Arizona
PGM=Pueblo Grande Museum, Phoenix, Arizona
PM=Peabody Museum, Harvard University, Cambridge, Massachusetts
PSPM=Tubuc Presidio State Historic Park Museum, Tubuc, Arizona
RMAC=Roswell Museum and Art Center, Roswell, New Mexico
SWAC=National Park Service, Southwestern Archaeological Center, Globe
SWM=Southwest Museum, Los Angeles, California
UA=University of Arizona, Department of Anthropology
UCM=University of Colorado Museum, Boulder, Colorado
UNM=University of New Mexico Anthropological Museum, Albuquerque
USNM=United States National Museum, Washington, D.C.
UT=University of Texas, Department of Anthropology, Austin, Texas
WNMM=Wupatki National Monument Museum, Flagstaff, Arizona
YCL=Yavapai Chapter Laboratory (Arizona Archaeological Society, Inc.), Prescott, Arizona

The North American Southwest Copper Bell Inventory

The updated copper bell inventory (Table 4.2) includes only prehistoric bells from the North American Southwest, including northern Mexico. Therefore, bells from Hawikuh were not included as occupation of this site continued after European contact and the precise dating of the burials with copper bells cannot be confidently placed in the pre-contact period of the site.

The data in Table 4.2 are listed in order by their map number which corresponds to their geographical locations in Figure 4.2. The data fields in Table 4.2 include the map number, site name, location of curation, catalog number, bell type, quantity of this bell type, intrasite provenience, intrasite context, temporal assignment of the bell(s), tradition (e.g., Hohokam), and a sources and notes number (in the "N&S" column). The latter refers the reader to Appendix I which lists notes and sources for each bell occurrence by the assigned number in the "N&S" column in Table 4.2. For example, site number 52 is Dona Ana Target Range and has a notes and sources number of 56. The corresponding notes and sources are found in Appendix I under number 56. If the bell listing in Table 4.2 is a new one since the last distributional study (Sprague and Signori 1963) a double asterisk (**) is marked in the column entitled "N" (for "new"). If the typological assignment of a bell has been changed from Sprague and Signori's (1963) assignment, then a single asterisk (*) is marked in the column entitled "C" (representing "changed") and the reader can refer to the notes and sources section which documents the original assignment. The column titled "cg type" refers to Di Peso's (1974) typological assignment in the Casas Grandes bell typology. Only the bells from Paquime have data listed in this column. The column titled "type" represents the bell type as reflected in the southwestern copper bell typology (Figure 4.1 and Table 4.1). Appendix II contains the distributional data

from Table 4.2, but organized in alphabetical order by site name for easier reference.

Data Collection

The data collection for this study was conducted over a two year period from 1992 to 1994. To locate new copper bells discovered since the last inventory (Sprague and Signori 1963) I wrote to museums and southwestern archaeologists at universities and contract firms, as well as doing a literature search. A large previously undocumented private collection was also catalogued, illustrated and photographed. I visited the Arizona State Museum, the Museum of New Mexico, and the Maxwell Museum of Anthropology and analyzed, illustrated, and documented their copper bell collections. In addition, inquiries for possible leads were placed in several national publications. Overall, the response from museum curators, archaeologists, and advocationalists was excellent.

The initial mailing of over 100 letters to archaeologists, museums, and contract firms was conducted in the fall of 1992. The letter requested information about copper bell discoveries, especially those since 1964, and citations with copper bell information which may not have had a wide publication. Included with the letter was a copper bell data sheet which could be completed and returned with the data pertinent to this study. I received a response from almost everyone, often with the names and addresses of individuals who might have more information on copper bells. These leads were pursued by letters and phone calls.

The inquiry sent to museums requested a listing of copper artifacts from their collections. All museums listed in the *AAA Guide: A Directory to Departments/ A Directory of Members* that cited southwestern or mesoamerican collections

were contacted. About half responded with artifact lists; any copper items not listed in Sprague and Signori's (1963) inventory of copper bells in the North American Southwest were documented and further information was requested. The largest repositories of southwestern copper bells are the Arizona State Museum and the Museum of New Mexico which I visited. Many of the bells in these collections were previously documented by Sprague and Signori (1963), which allowed me to become familiar with bell attributes. Measurements and catalog information were documented on each bell from the collections. I drew illustrations (1:1) for each as well. The Arizona State Museum also curates some mesoamerican bells which were analyzed for comparative purposes. Data sheets were completed on all previously undocumented bells. Although the Maxwell Museum of Anthropology at the University of New Mexico only has one bell that is provenienced in its collection, the bell had not previously been recorded in an inventory. Therefore, I also visited this museum and recorded the bell.

The next stage of research entailed the documentation of the private collection of John and Frances Horne. They graciously agreed to lend the collection to the Department of Anthropology at Arizona State University so that I would have the necessary facilities to catalog, illustrate, and photograph the collection. It includes many bells both from the North American Southwest and from Mesoamerica collected many years before the prohibition against importing artifacts from Mexico. The collection includes hundreds of bells, almost all with provenience, but not with contextual information. The West Mexican specimens from this collection led me to investigate site reports from this region as it became apparent that there were correlates in bell types between West Mexico and the North American Southwest.

Requests for information concerning copper bells were listed in *The Anthropology Newsletter* and the Society for American Archaeology bulletin.

Letters resulting from my original mailing, published requests, and general word-of-mouth continued through the Spring of 1994. I made a considerable effort to respond to all leads. More specific information and photographs or illustrations of the bells were requested when possible and documented as they were received.

The final stage of data collection was an in-depth literature search for published bells from site reports and articles, including the literature cited for previously documented bells as well as new discoveries. This allowed the expansion and revision of the copper bell typology and some reassignment of previously typed bells.

The updated inventory contains 617 bells from 94 sites in the North American Southwest including northern Mexico. This is an addition of 167 bells and 32 sites from Sprague and Signori's (1963) inventory. The inventory presented here is not exhaustive. I received some responses too late to include and many yet to be analyzed bells are undoubtably in small regional museums and private collections. The process of updating the inventory will continue for many years. However, the expanded data base and typology are large enough to allow for an effective analysis of the distributional patterning of the copper bells. The following chapter analyzes the distribution of bell styles in the North American Southwest.

Chapter 5

Analysis of the Temporal Patterning of Copper Bell Types in the North American Southwest

The analysis of possible trade and exchange relationships between sites within the North American Southwest and possible trade relationships between the North American Southwest and West Mexico requires the consideration of contemporaneity of the sites. Fortunately, there is a large enough sample of dated bells to allow for such an analysis, but not all of the 617 bells from the 94 sites catalogued in Chapter 4 can be dated.

The temporal analysis in this chapter is based on the technological chronology of copper metallurgy in West Mexico and its division into two main phases by Hosler (1986). As outlined in greater detail in Chapter 3, Phase I sites date between A.D. 800 to 1200-1300, and Phase II sites date from A.D. 1200-1300 to 1520. To allow a tighter temporal control of possible contemporaneity, the division between Phase I and Phase II will be assigned to A.D. 1250. This permits a convenient division of the sites which are contemporary with the Medio Period at Paquime (A.D. 1200-1250 to 1450-1500) and those that are prior to the Medio Period. The Medio Period is the only time period at Paquime with smelted copper artifacts (Di Peso et al. 1974).

As Phase I sites are prior to the Medio Period at Paquime, there is strong evidence supporting trade between the North American Southwest and West Mexico not involving Paquime. With the recent publication of the redating of Paquime (Dean and Ravesloot 1993), the view held by many southwestern archaeologists (e.g., Plog et al. 1980) that Paquime was the likely source of copper bells in the North American Southwest is incorrect. With the Medio Period redated to A.D. 1200-1250 to 1450-1500 (originally dated from A.D. 1060

to 1340), it is apparent that considerable trade in copper bells occurred prior to the rise of Paquime. The separation of Phase I and Phase II sites enables a more precise analysis of this trade prior to the Medio Period.

Since Di Peso's (1974) argument for copper production at Paquime during the Medio Period is not supported by my critical reevaluation of the data we must reassess the site's role in copper bell trade from West Mexico to the North American Southwest. Therefore, establishing contemporaneity of Phase II sites (contemporary with the Medio Period at Paquime) is essential for this task.

Each bell type is plotted on a map showing the location of its occurrences. Quantities of each bell type can be found in Appendix III which is organized by grouping bell types together and presenting the total of each type. The total copper bell inventory for each site is presented in Appendix II, which is organized alphabetically by site name. This chapter will discuss the distribution of the bell types, the quantities of the types, and an analysis of sites that have the highest quantities and/or the greatest diversity of bell types. This is an important consideration for evaluating the trade patterns of the bell distribution for evidence of down-the-line trade, direct trade from/with West Mexico, major nodes of trade in the North American Southwest, and/or restricted access or equal access to these goods within and between southwestern sites.

The Analysis of Phase I

Figure 5.1 showing the distribution of all Phase I sites with copper bells in the North American Southwest indicates a tight clustering in the Mimbres Valley, New Mexico, during the Classic Mimbres Period. Chaco Canyon also produces a tight clustering as does the Flagstaff area. There is a looser clustering in the Hohokam region with numerous examples. The Alamogordo area, which is

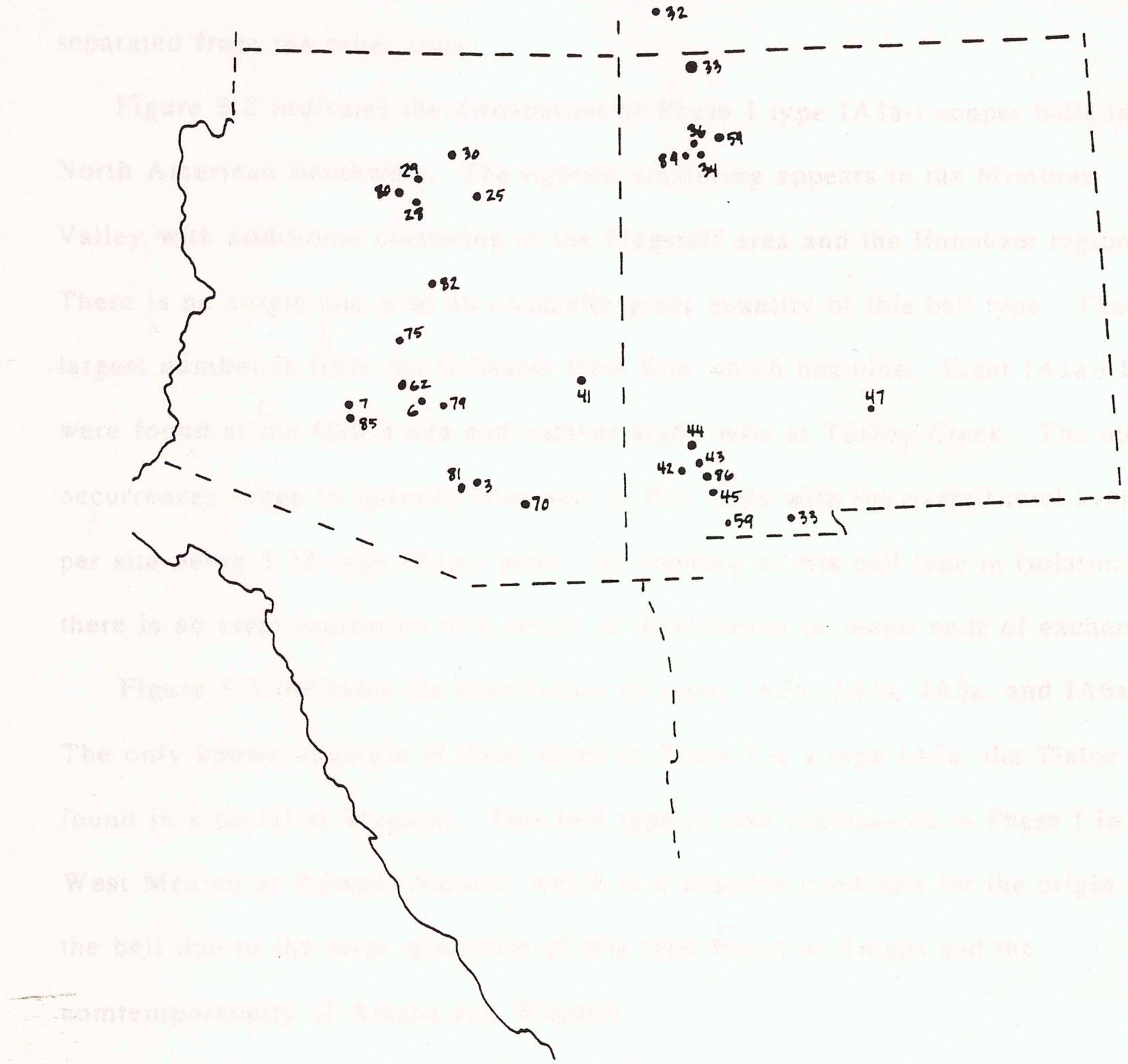


Figure 5.1: Distribution of Phase I Sites

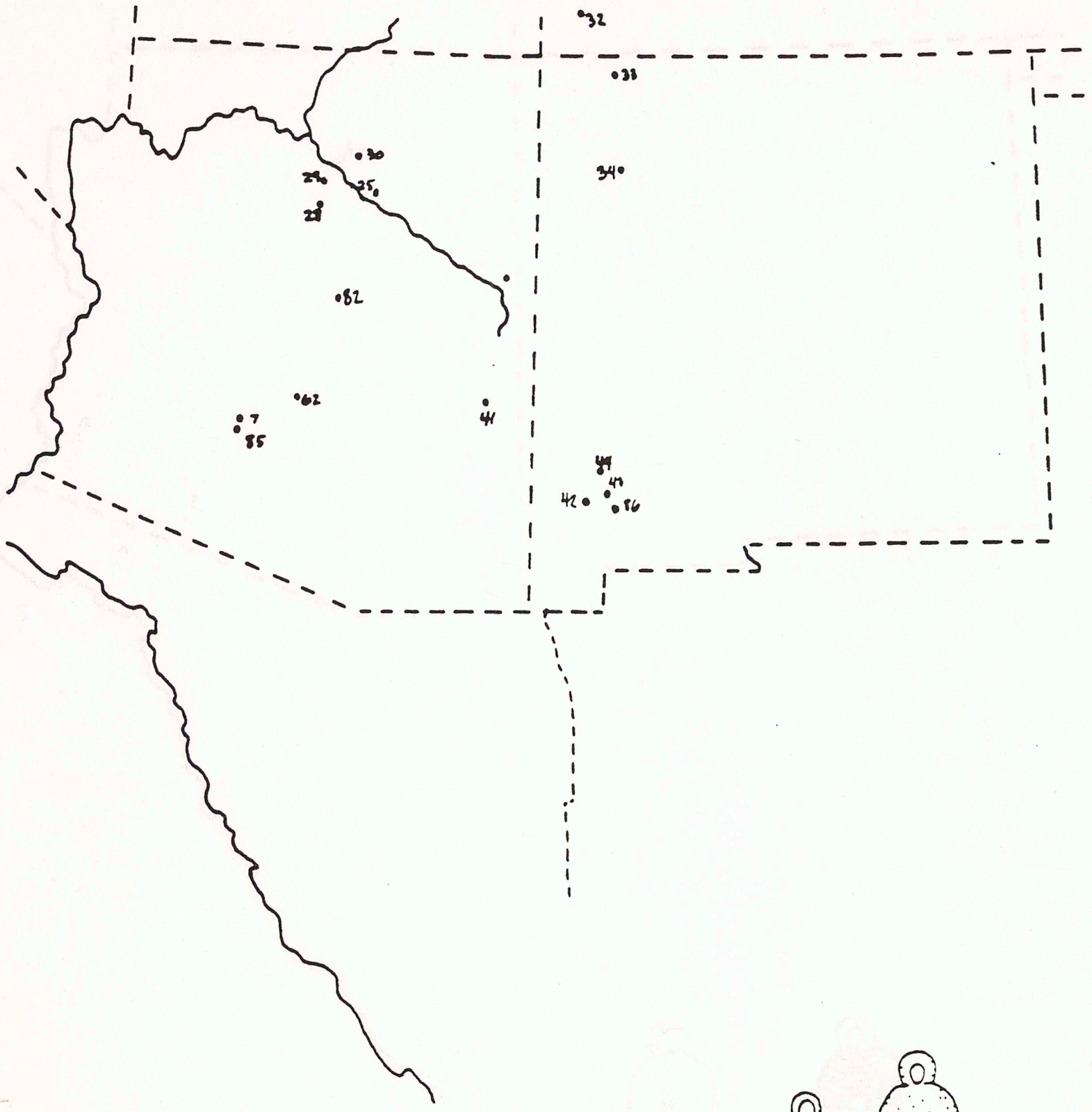
3 Romo Site
6 Snaketown
7 Gatlin
25 Copper Bell Ruin
28 Flagstaff Area
29 Canyon de Flag
30 Wupatki
32 Goodman Point
33 Aztec, W. Ruin
34 Pueblo Bonito
34 Pueblo del Arroyo
41 Point of Pines
41 Turkey Creek
42 Cameron Creek
43 Galaz Ruin
44 Mattocks Ruin
45 Old Town
47 Alamogordo area
53 Mt. Riley area
54 Osborn Ruin
59 Bis san'ani Ruin
62 Los Morteros
70 Alder Wash
75 Pinnacle Peak
76 Pueblo Alto
79 Maricopa Rd. Site
80 Tse T'lani
81 Rooney Ranch Site
82 Schoolhouse
85 Gillespie Dam Site
86 Nan Ranch Ruin

widely separated spatially from other sites with copper bells, has a single bell. The eight bells from Turkey Creek and the three bells from Point of Pines are separated from the other sites.

Figure 5.2 indicates the distribution of Phase I type IA1a-i copper bells in the North American Southwest. The tightest clustering appears in the Mimbres Valley with additional clustering in the Flagstaff area and the Hohokam region. There is no single site with an unusually great quantity of this bell type. The largest number is from the Gillespie Dam Site which has nine. Eight IA1a-i bells were found at the Gatlin site and another eight bells at Turkey Creek. The other occurrences range in quantity from one to five bells with the overall total average per site being 3.18 type IA1a-i bells. By looking at this bell type in isolation there is no clear indication of a center of distribution or major node of exchange.

Figure 5.3 indicates the distribution of types IA2a, IA4a, IA5a, and IA6a. The only known example of these types in Phase I is a type IA5a, the Tlaloc bell found in a burial at Wupatki. This bell type is also represented in Phase I in West Mexico at Amapa, Nayarit, which is a possible candidate for the origin of the bell due to the large quantities of this type found at Amapa and the comtemporaneity of Amapa and Wupatki.

The distribution of types IB1a and IB2a (Figure 5.4) is represented at only three sites for this time period in widely separated locations. The type IB2a does not appear during Phase I in the Southwest. The Phase I type IB1a bells are found in the greatest quantity from the Romo Cache which has at least 15 (probably 25) bells of this type from a single special deposit. The identification of the exact settlement which deposited this cache of bells is unknown. However, based upon the ceramic type of the vessel containing the bells, it is likely that the cultural affiliation (for lack of a better term) was Hohokam. The other two



IA1a-i

Figure 5.2: Distribution of Phase I Type IA1a-i

7 Gatlin Site
29 Canyon de Flag
33 Aztec, W. Ruin
41 Turkey Creek
44 Mattocks Ruin
85 Gillespie Dam Site
25 Copper Bell Ruin
30 Wupatki
34 Pueblo Bonito
42 Cameron Creek
62 Los Morteros
86 Nan Ranch
28 Flagstaff Area
32 Goodman Point
41 Point of Pines
43 Galaz
82 Schoolhouse Mesa

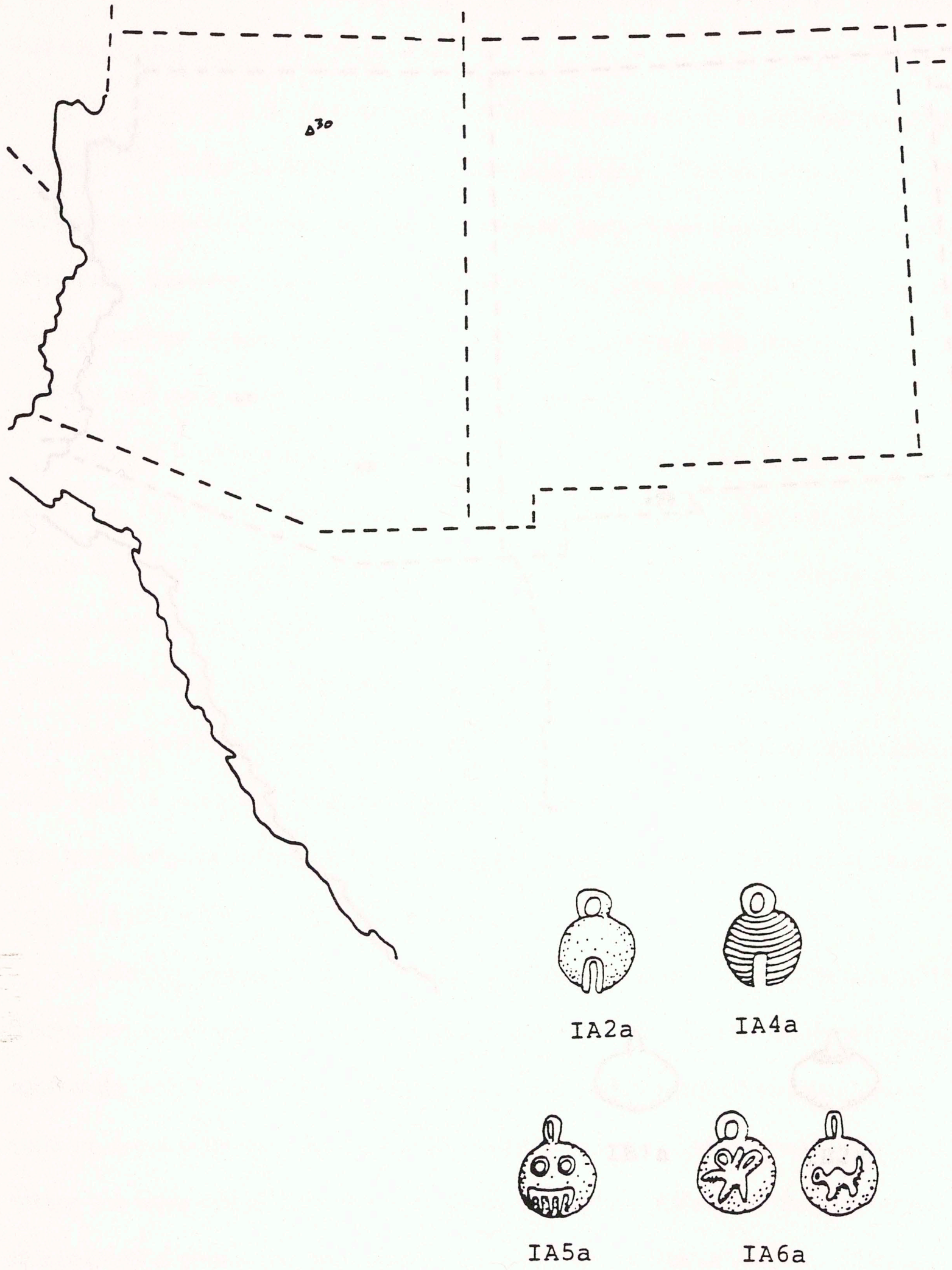


Figure 5.3: Distribution of Phase I Types IA2a, IA4a, IA5a, and IA6a

Key: IA2a= o IA4a= • IA5a= △ IA6a= ✳

30 Wupatki

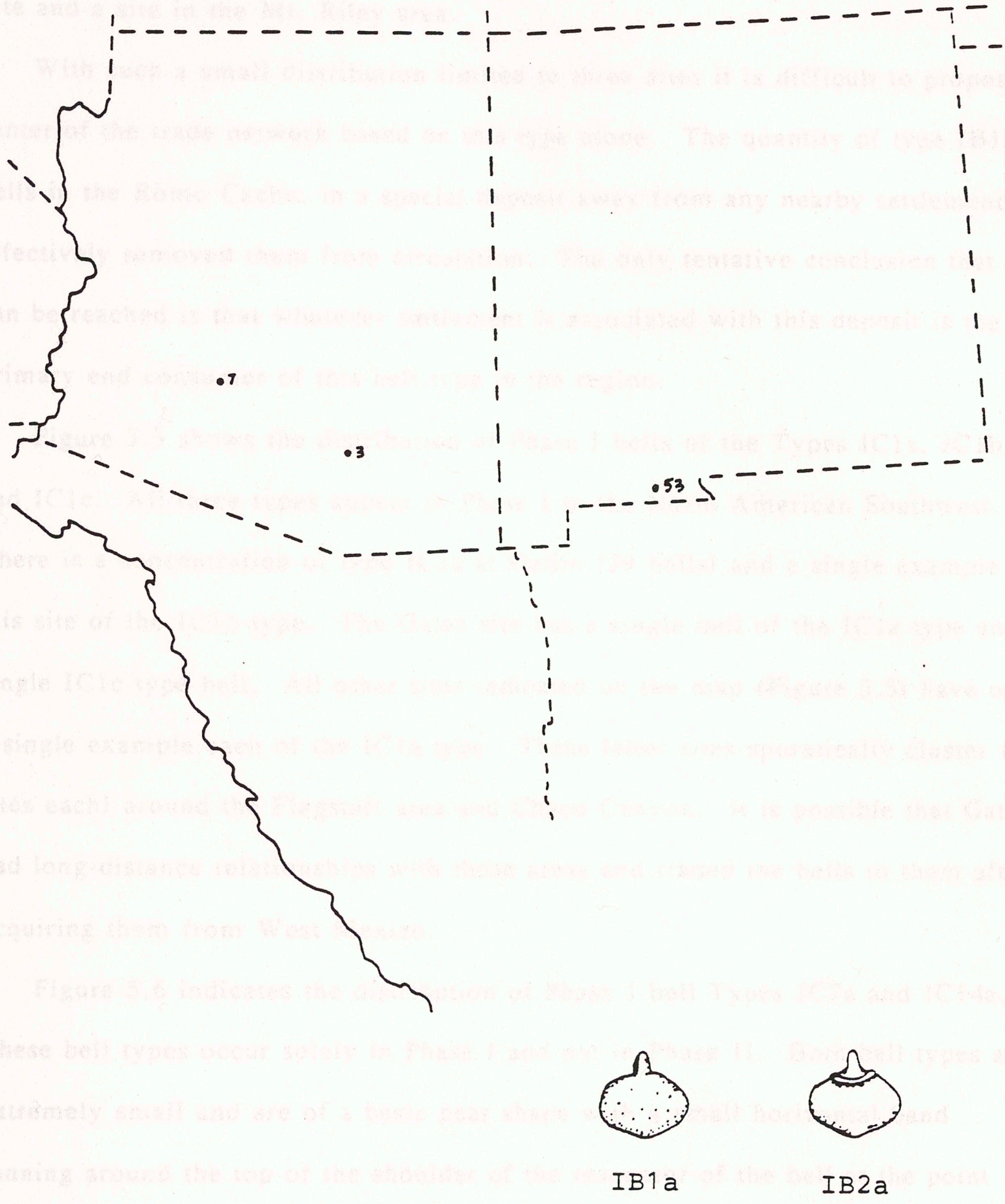


Figure 5.4: Distribution of Phase I Types IB1a and IB2a

Key: IB1a= • IB2a= o

3 Romo Cache 7 Gatlin Site 53 Mt. Riley Area

identified locations with a single specimen of the IB1a type bell are the Gatlin Site and a site in the Mt. Riley area.

With such a small distribution limited to three sites it is difficult to propose a center of the trade network based on this type alone. The quantity of type IB1a bells in the Romo Cache, in a special deposit away from any nearby settlements, effectively removed them from circulation. The only tentative conclusion that can be reached is that whatever settlement is associated with this deposit is the primary end consumer of this bell type in the region.

Figure 5.5 shows the distribution of Phase I bells of the Types IC1a, IC1b, and IC1c. All three types appear in Phase I in the North American Southwest. There is a concentration of type IC1a at Gatlin (39 bells) and a single example at this site of the IC1b type. The Galaz site has a single bell of the IC1a type and a single IC1c type bell. All other sites indicated on the map (Figure 5.5) have only a single example each of the IC1a type. These latter sites sporatically cluster (2 sites each) around the Flagstaff area and Chaco Canyon. It is possible that Gatlin had long-distance relationships with these areas and traded the bells to them after acquiring them from West Mexico.

Figure 5.6 indicates the distribution of Phase I bell Types IC7a and IC14a. These bell types occur solely in Phase I and not in Phase II. Both bell types are extremely small and are of a basic pear shape with a small horizontal band running around the top of the shoulder of the resonator of the bell at the point where the appendicle ring attaches to the bell. The difference between the types is based on a presumed post-production treatment of the IC7a type. There is a large hole drilled completely through the face of the bell resonator in the IC7a type.

There are only two known occurrences, totalling five bells, of the IC7a type from the North American Southwest, but there is an example of this type from

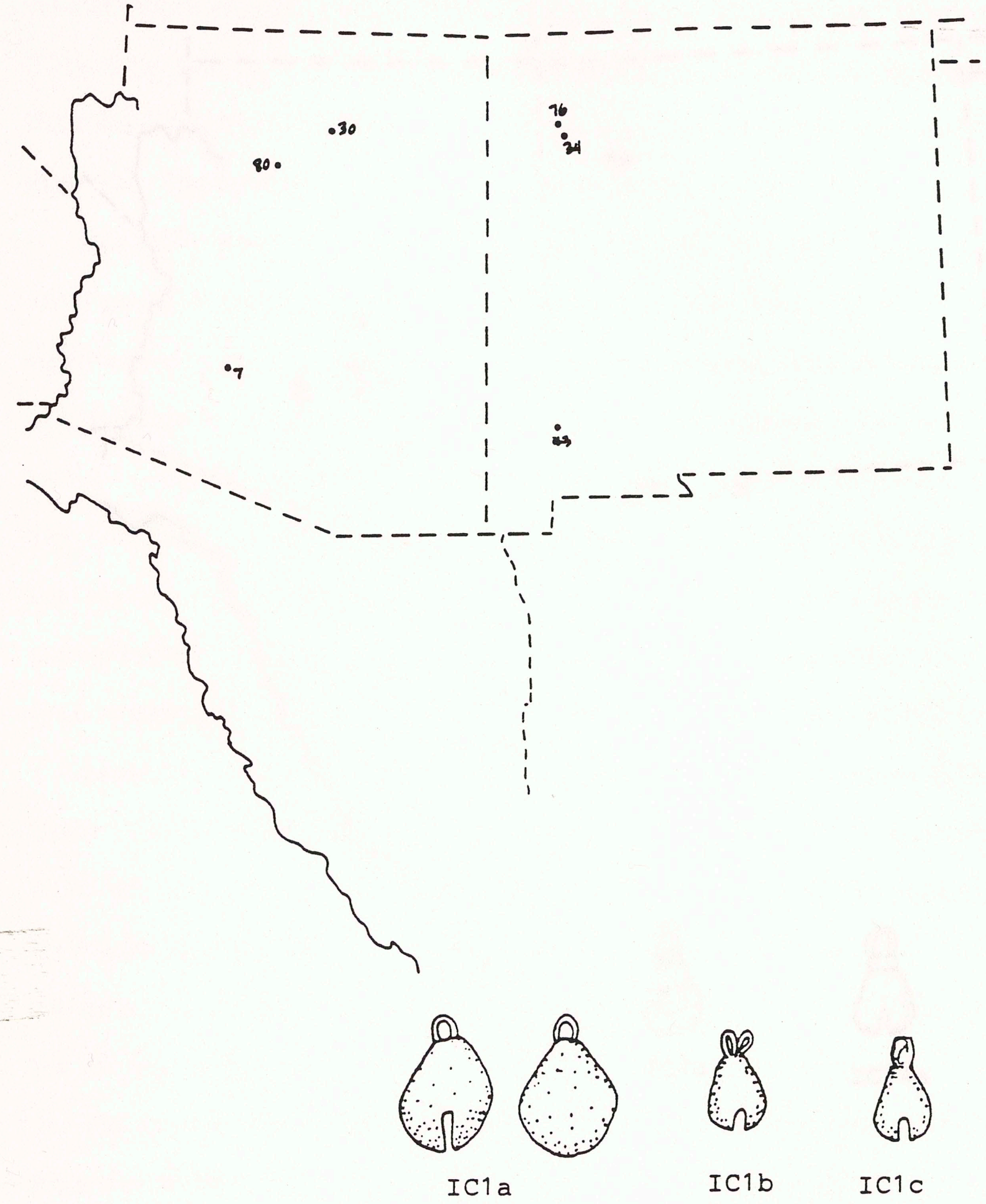
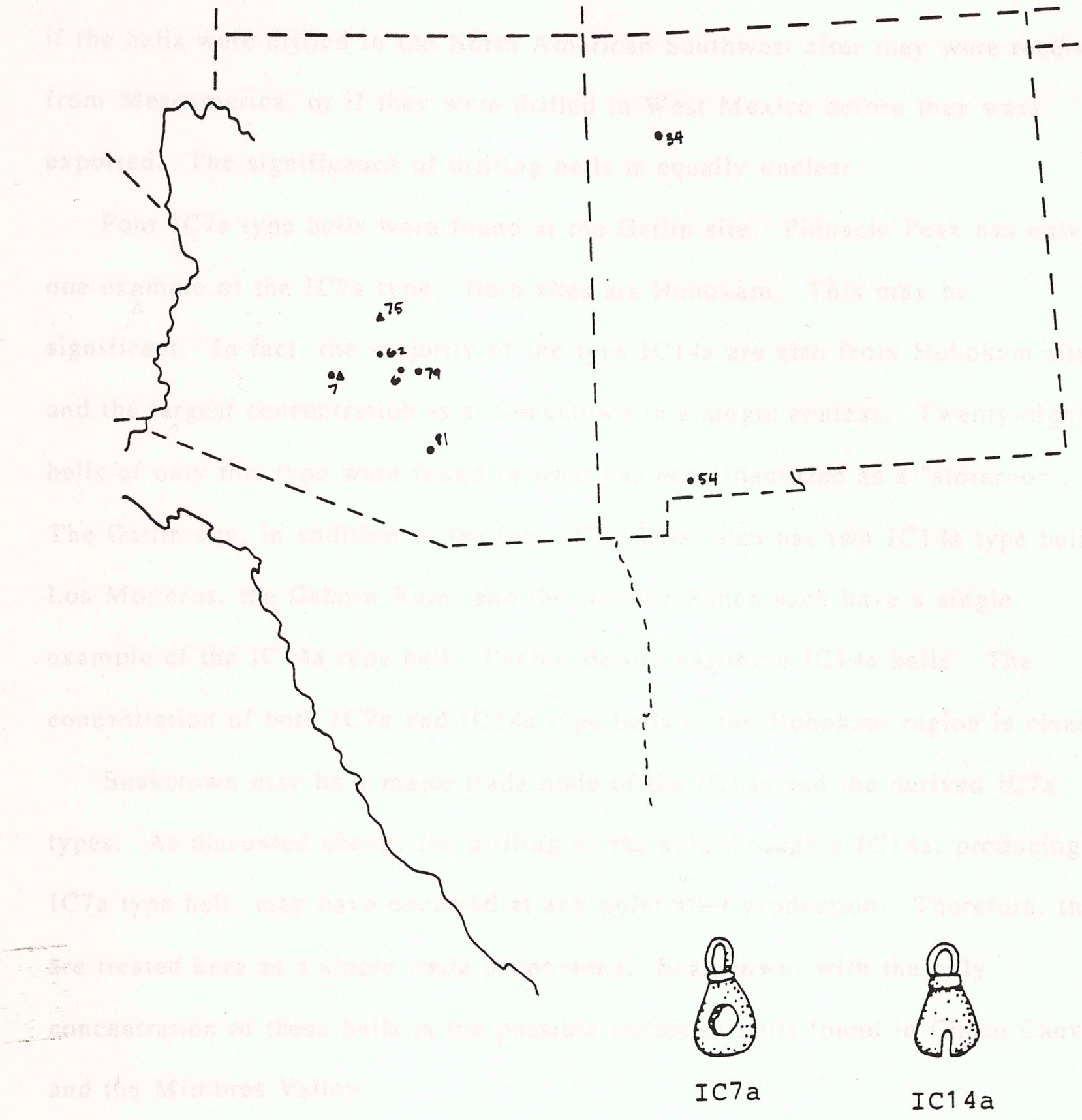


Figure 5.5: Distribution of Phase I Types IC1a, IC1b, and IC1c

Key: IC1a= • IC1b= ▲ IC1c= ♦

7 Gatlin Site
43 Galaz Ruin
30 Wupatki
76 Pueblo Alto
34 Pueblo Bonito
80 Tse T'lani



IC7a

IC14a

Figure 5.6: Distribution of Phase I Types IC7a and IC14a

Key: IC7a= ▲ IC14a= •

6 Snaketown
7 Gatlin Site
34 Pueblo Bonito
54 Osborn Ruin
62 Los Morteros
75 Pinnacle Peak
79 Maricopa Road Site
81 Rooney Ranch Site

Mesoamerica (from Culiacan, Sinaloa) which indicates that the practice of drilling bells is known in Mesoamerica (Lister 1955:47 [Figure 20, item 1]). It is unclear if the bells were drilled in the North American Southwest after they were received from Mesoamerica, or if they were drilled in West Mexico before they were exported. The significance of drilling bells is equally unclear.

Four IC7a type bells were found at the Gatlin site. Pinnacle Peak has only one example of the IC7a type. Both sites are Hohokam. This may be significant. In fact, the majority of the type IC14a are also from Hohokam sites and the largest concentration is at Snaketown in a single context. Twenty-eight bells of only this type were found in what has been identified as a "storeroom." The Gatlin site, in addition to the four IC7a bells, also has two IC14a type bells. Los Morteros, the Osborn Ruin, and the Rooney Ranch each have a single example of the IC14a type bell. Pueblo Bonito has three IC14a bells. The concentration of both IC7a and IC14a type bells in the Hohokam region is clear.

Snaketown may be a major trade node of the IC14a and the derived IC7a types. As discussed above, the drilling of the hole through a IC14a, producing a IC7a type bell, may have occurred at any point after production. Therefore, they are treated here as a single trade phenomena. Snaketown, with the only concentration of these bells is the possible source of bells found in Chaco Canyon and the Mimbres Valley.

The following bell types are not found at any Phase I dated sites in the North American Southwest: IA2a, IA4a, IA6a, IB2a, IC6a, IC8a through IC13a, IC15a through IC20a, ID1a, ID2a, ID4a, ID5a, ID6a, ID9a and ID10a. This is not surprising due to that fact that the majority of these types (see Figure 4.1) are more complex in design and reflect the type of bells Hosler (1988b) anticipates as being produced from copper alloys in Phase II.

Table 5.1 summarizes the data of Phase I sites in the North American Southwest with copper bells. Clearly, the Gatlin site stands out from the other sites in its overall quantity of bells and diversity of bell types. In fact, the only bell types occurring in Phase I that are not represented at Gatlin are the IA5a and the IC1c types.

The IC1c type is different from the IC1a and IC1b types only in the treatment of the appendicle ring. The IC1c type bell has a flattened strap-like loop for suspension, whereas type IC1a has a rounded wire loop for suspension (rounded when viewed in section). The distinction between these types is not great, and with only a single bell of the IC1c type occurring in the North American Southwest it is not of great importance in the overall distribution. The situation of the type IA5a bell at Wupatki is summarized further below.

The Gatlin site appears to exhibit the criteria expected for possibly being a major trade node of copper bells in the North American Southwest; a high quantity of bells and a large relative diversity of types. The site has 55 bells of six types. The only two types not occurring at Gatlin, as discussed above, are of single specimens each. The Hohokam region, particularly the Gatlin site, apparently controlled the distribution of copper bells to other sites in the North American Southwest.

The position of Snaketown in this trade is not clear, but the 28 bells of the IC14a type from a "storehouse" context which housed other goods such as shell, implies the site may also be a node in the exchange of at least this particular type. It is unclear with the available data. It also is possible that these bells were acquired from Gatlin. Regardless, the single context of the bells at Snaketown within what may be a "storehouse" may indicate intra-site restriction of access.

Table 5.1

Phase I Site Summary

Site Name	Qty of Bells	# of Types	Bell Type (Qty of each type)
Alamogordo	2	?	? (?)
Alder Wash	1	1	? (1)
Aztec Ruin	1	1	IA1a-i (1)
Bis san'ani	?	?	?
Cameron Creek	1	1	IA1a-i (1)
Canyon de Flag	2	1	IA1a-i (2)
Copper Bell Ruin	5	1	IA1a-i (5)
Flagstaff area	1	1	IA1a-i (1)
Galaz	4	3	IA1a-i (1), IC1a (1), IC1c (1), ? (1)
Gatlin	55	6	IA1a-i (8), IB1a (1), IC1a (39), IC1b (1), IC7a (4), IC14a (2)
Gillespie Dam Site	9	1	IA1a-i (9)
Goodman Point	1	1	IA1a-i (1)
Los Morteros	2	2	IA1a-i (1), IC14a (1)
Maricopa Road Site	1	1	IC14a (1)
Mattocks Ruin	1	1	IA1a-i (1)
Mt. Riley area	1	1	IB1a (1)
Old Town	1	1	IA1a-i (1)
Osborn Ruin	10	2	IA1a-i (9), IC14a (1)
Point of Pines	3	1	IA1a-i (3)
Pinnacle Peak	1	1	IC7a (1)

Table 5.1 Continued

Site Name	Qty of Bells	# of Types	Bell Type (Qty of each type)
Pueblo Alto	1	1	IC1a (1)
Pueblo Bonito	21	3 or more	IA1a-i (6), IC1a (1), IC14a (3), fragments (7), ? (4)
Pueblo del Arroyo	5	?	fragments (2), ? (3)
Romo Cache	25	1 or more	IB1a (15), ? (10)
Rooney Ranch Site	1	1	IC14a (1)
Schoolhouse Mesa	1	1	IA1a-i (1)
Snaketown	28	1	IC14a (28)
Tse Tlani	1	1	IC1a (1)
Turkey Creek	8	1	IA1a-i (8)
Wupatki	10	3 or more	IA1a-i (4), IA5a (1), IC1a (1), fragments (3), ? (1)
Nan Ranch	3	1 or more	IA1a-i (1), fragment (1), ? (1)

The IA5a bell type, the Tlaloc face bell, is represented in Phase I with a single example from Wupatki. Three bell fragments from Wupatki are not yet assigned to a particular bell type and one whole bell has also not been assigned a type. I was unable to view these bells personally to try to assign them to a specific type. Wupatki's inventory is interesting in that there are only ten bells of three or more types, yet one of these bell types identified (the IA5a Tlaloc bell) is not represented at any other site during Phase I. The mesoamerican iconographic symbolism of the Tlaloc bell design is overt, yet it is unclear if it would be understood by the inhabitants of the site.

The scarcity of this bell type in the North American Southwest with one occurring in Phase I at Wupatki, and one at Paquime during Phase II, compared to the large quantities represented at West Mexican sites (especially Amapa in Nayarit) is intriguing. Therefore, although the numbers of bells at Wupatki are not great, it stands out somewhat as an anomoly in comparison to other sites. Apparently, the site is not a major node in the exchange of copper bells as there are so few found at this site.

Phase I appears to be characterized with a copper bell trade network centered in the Hohokam region with the Gatlin site as a primary node in this exchange. Snaketown has been identified as a possible center of the IC14a and IC7a types (the latter derived from a IC14a type), but it is unclear if Snaketown acquired these bells from Gatlin or West Mexican trade. The situation at Wupatki has raised questions about its status in reference to copper bell trade which cannot be resolved here with the available evidence. The following section evaluates copper bell trade patterns in Phase II.

The Analysis of Phase II

As discussed earlier. Phase II is contemporary with the Medio Period at Paquime. My research has indicated that the inhabitants of Paquime are most likely not manufacturing smelted copper artifacts at the site. However. Paquime clearly has the largest quantity of bells and diversity of types of all the sites from the North American Southwest with 117 bells of 11 types (see Appendix 2 for site totals). This section concentrates on two issues. One. is Paquime acting as a middle-person in copper bell trade from West Mexico to the other southwestern sites? In other words. is Paquime the major regional node in copper bell trade? Are all the bells found at southwestern sites during Phase II being traded northward from Paquime? Or. is there continuity within the Hohokam region in Arizona in copper bell trade from Phase I to Phase II?

The second issue. is whether there is more than one copper bell trade network operating within the North American Southwest. If so. what is the nature of these trade networks? Special attention is given to similarities and differences in the distribution of bell types between Paquime and other southwestern sites in order to determine the intra-regional dynamics of copper bell trade and to establish what sites within the North American Southwest are interacting with one another in relation to this proposed trade.

Figure 5.7 indicates all sites in the North American Southwest dated to Phase II with copper bells. The sites circled in the map are sites which have copper bell types which do not occur at Paquime. It is apparent from this map alone that all the sites with the copper bell types not represented at Paquime are clustered in the Hohokam/Salado region in Arizona. It is equally clear that Paquime is unlikely to have been the source of these bells.

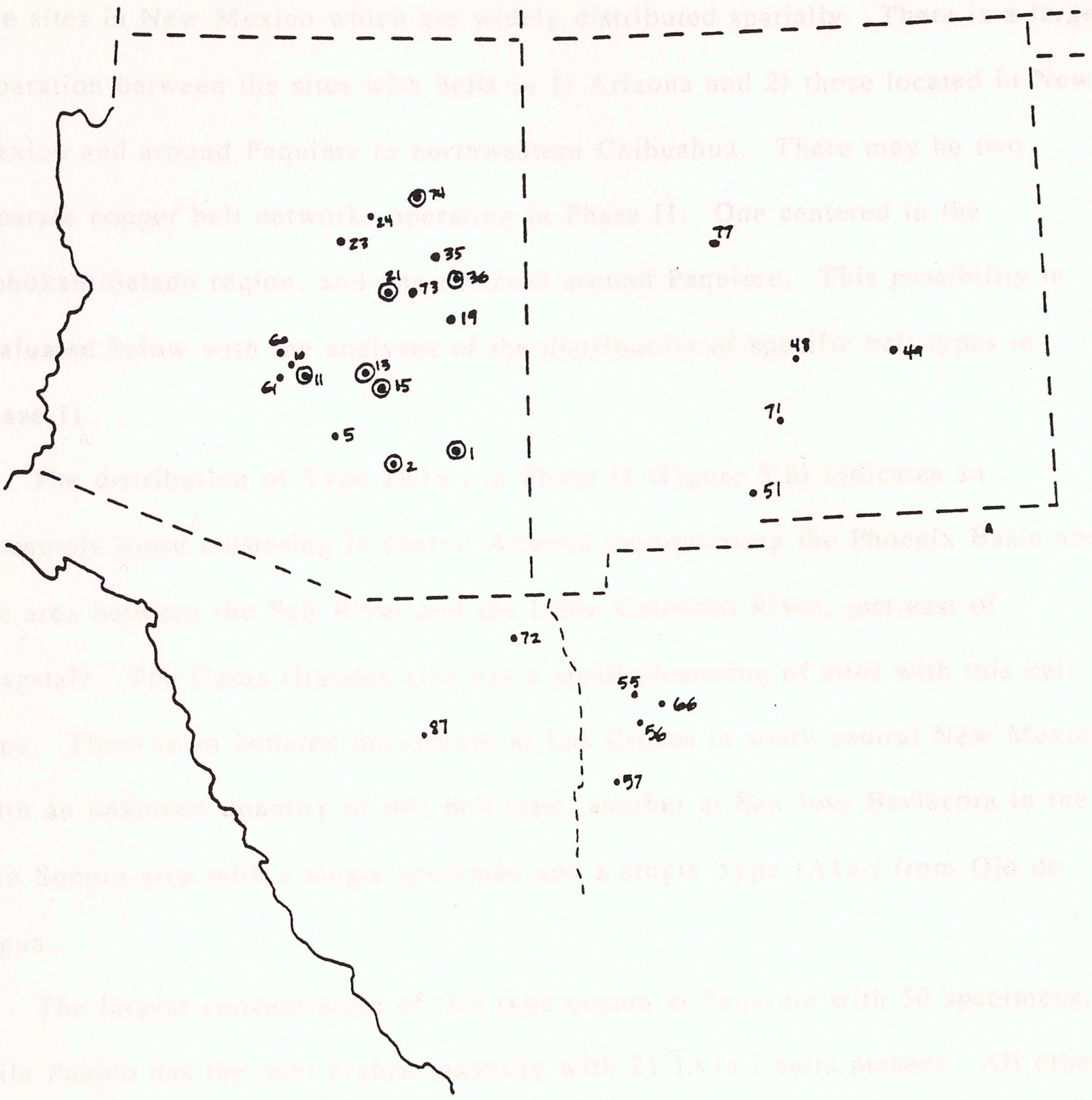


Figure 5.7: Distribution of Phase II Sites

Key: Sites with Types found also at Paquime= •
Sites with Types not found at Paquime= ⊙

1 76 Ranch
2 Mammoth
5 Casa Grande
10 Pueblo Grande
11 Los Hornos
13 Hilltop House
15 Gila Pueblo
19 Kinishba
21 Q Ranch
21 Cherry Creek
23 Chavez Pass
24 Pollock Site
35 Four Mile Ruin
48 Three Rivers
49 Bloom Mound
51 Las Cruces
55 Casas Grandes
61 Las Colinas
66 San Joaquin
69 La Ciudad
71 White Sands
72 Ojo de Agua
73 Grasshopper
74 Homolovi II
77 Pottery Mound
Pueblo del Monte
87 San Jose Baviacora

Figure 5.7 also indicates a clustering of sites with bells around Paquime and five sites in New Mexico which are widely distributed spatially. There is a large separation between the sites with bells in 1) Arizona and 2) those located in New Mexico and around Paquime in northwestern Chihuahua. There may be two separate copper bell networks operating in Phase II. One centered in the Hohokam/Salado region, and one centered around Paquime. This possibility is evaluated below with the analyses of the distribution of specific bell types in Phase II.

The distribution of Type IA1a-i in Phase II (Figure 5.8) indicates an extremely loose clustering in central Arizona incorporating the Phoenix Basin and the area between the Salt River and the Little Colorado River, just east of Flagstaff. The Casas Grandes area has a small clustering of sites with this bell type. There is an isolated occurrence at Las Cruces in south-central New Mexico with an unknown quantity of this bell type, another at San Jose Baviacora in the Rio Sonora area with a single specimen and a single Type IA1a-i from Ojo de Agua.

The largest concentration of this type occurs at Paquime with 50 specimens. Gila Pueblo has the next highest quantity with 21 IA1a-i bells present. All other locations in Phase II have between one and three bells of this kind. Paquime appears to be the logical center of trade of the IA1a-i bells in Phase II. However, this is problematic and will be addressed further on.

The distribution of Phase II types IA2a, IA4a, IA5a, and IA6a is plotted in Figure 5.9. Three of these types are found at Paquime; the only type not present is IA2a. In fact, there is no known temporal assignments for the IA2a type in the North American Southwest, therefore, it cannot be analyzed here. The only other site besides Paquime with any of these types is a single specimen of the

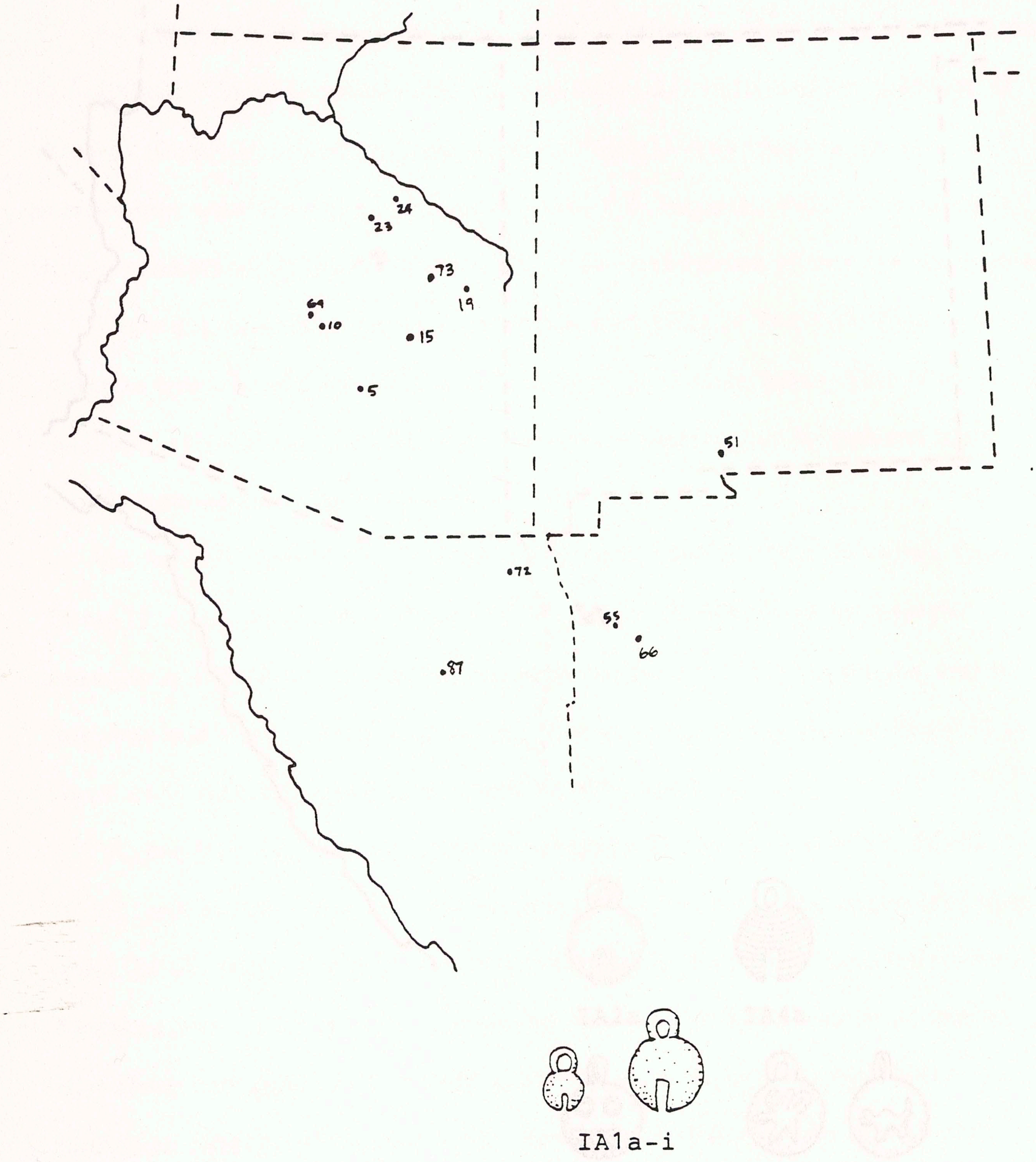


Figure 5.8: Distribution of Phase II Type IA1a-i

5 Casa Grande
10 Pueblo Grande
15 Gila Pueblo
19 Kinishba
23 Chavez Pass
24 Pollock Site
51 Las Cruces
55 Casas Grandes
66 San Joaquin
69 La Ciudad
72 Ojo de Agua
73 Grasshopper

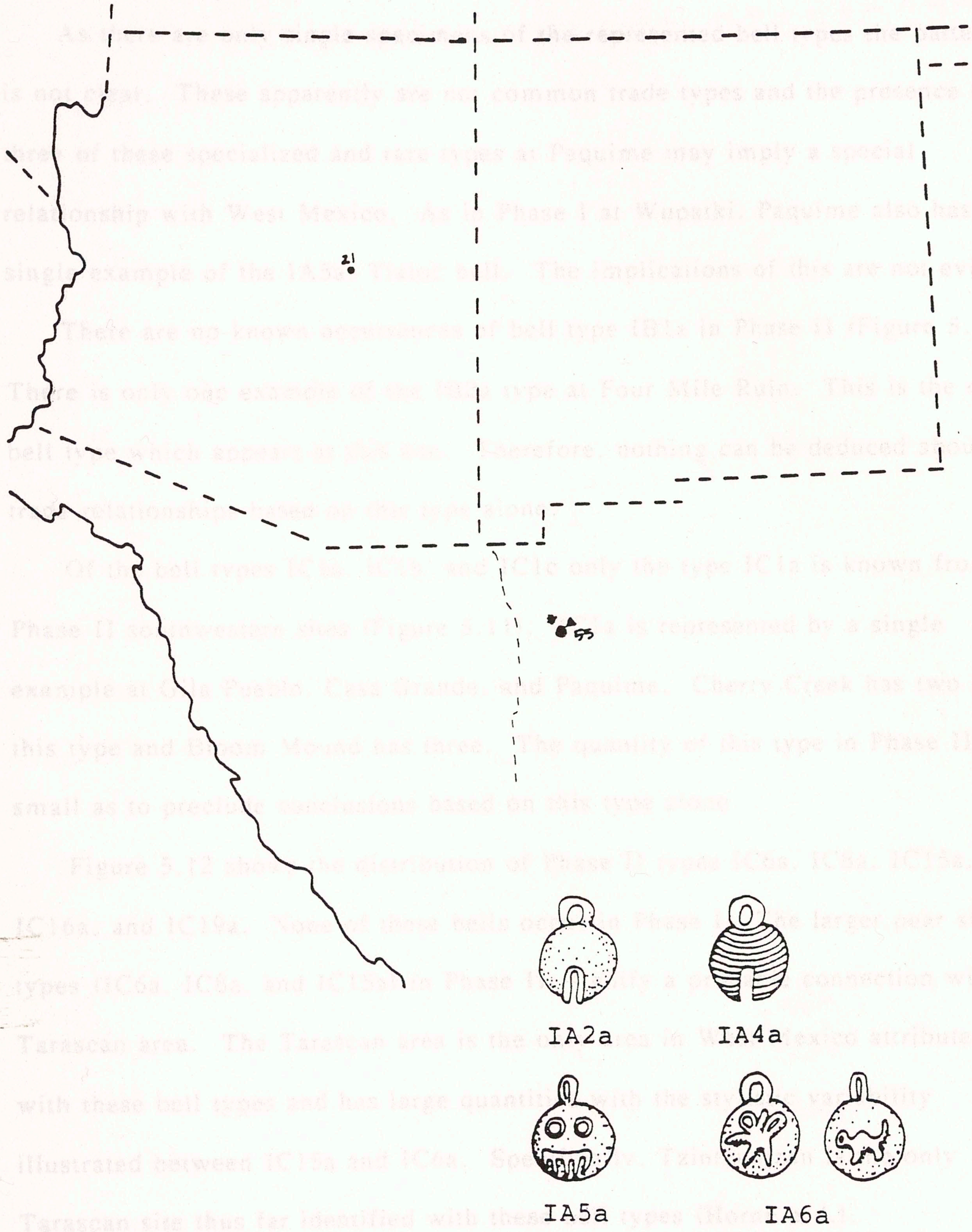


Figure 5.9: Distribution of Phase II Types IA2a, IA4a, IA5a, and IA6a

Key: IA2a= O IA4a= • IA5a= Δ IA6a= *

21 Cherry Creek 55 Casas Grandes

IA4a (globular bell with simulated wirework covering the resonator body) at Cherry Creek, Arizona.

As there are only single specimens of the represented bell types the patterning is not clear. These apparently are not common trade types and the presence of three of these specialized and rare types at Paquime may imply a special relationship with West Mexico. As in Phase I at Wupatki, Paquime also has a single example of the IA5a, Tlaloc bell. The implications of this are not evident.

There are no known occurrences of bell type IB1a in Phase II (Figure 5.10). There is only one example of the IB2a type at Four Mile Ruin. This is the only bell type which appears at this site. Therefore, nothing can be deduced about trade relationships based on this type alone.

Of the bell types IC1a, IC1b, and IC1c only the type IC1a is known from Phase II southwestern sites (Figure 5.11). IC1a is represented by a single example at Gila Pueblo, Casa Grande, and Paquime. Cherry Creek has two of this type and Bloom Mound has three. The quantity of this type in Phase II is so small as to preclude conclusions based on this type alone.

Figure 5.12 shows the distribution of Phase II types IC6a, IC8a, IC15a, IC16a, and IC19a. None of these bells occur in Phase I. The larger pear shaped types (IC6a, IC8a, and IC15a) in Phase II, signify a probable connection with the Tarascan area. The Tarascan area is the only area in West Mexico attributed with these bell types and has large quantities with the stylistic variability illustrated between IC15a and IC6a. Specifically, Tzintzuntzan is the only Tarascan site thus far identified with these bell types (Horne n.d.).

The scarcity of these bell types (IC6a, IC8a, and IC15a) in the North American Southwest (Figure 5.12) is such that no clear patterning emerges, although it is interesting that none are attributed to New Mexico or the Casas

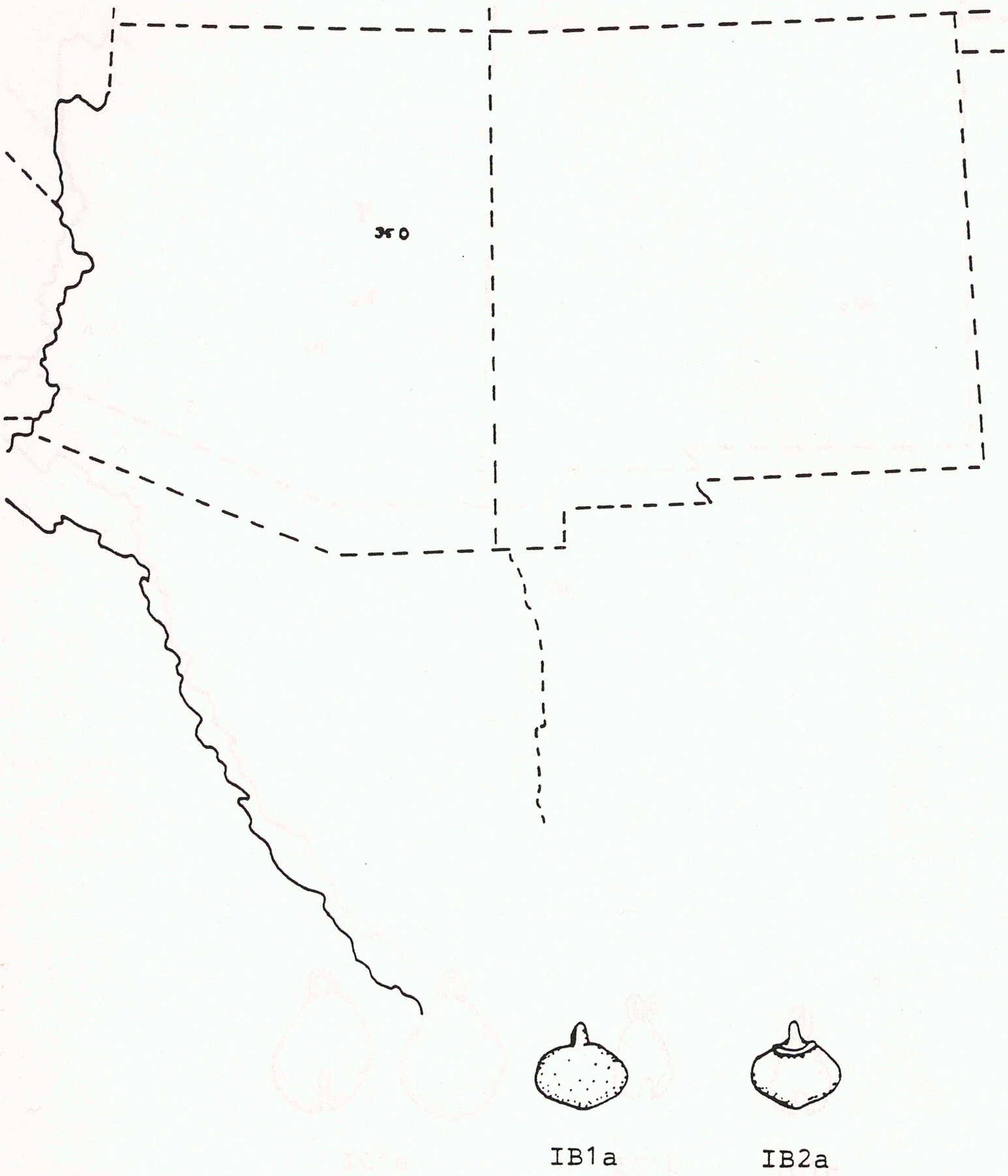


Figure 5.10: Distribution of Phase II Types IB1a and IB2a

Key: IB1a= • IB2a= o

35 Four Mile Ruin

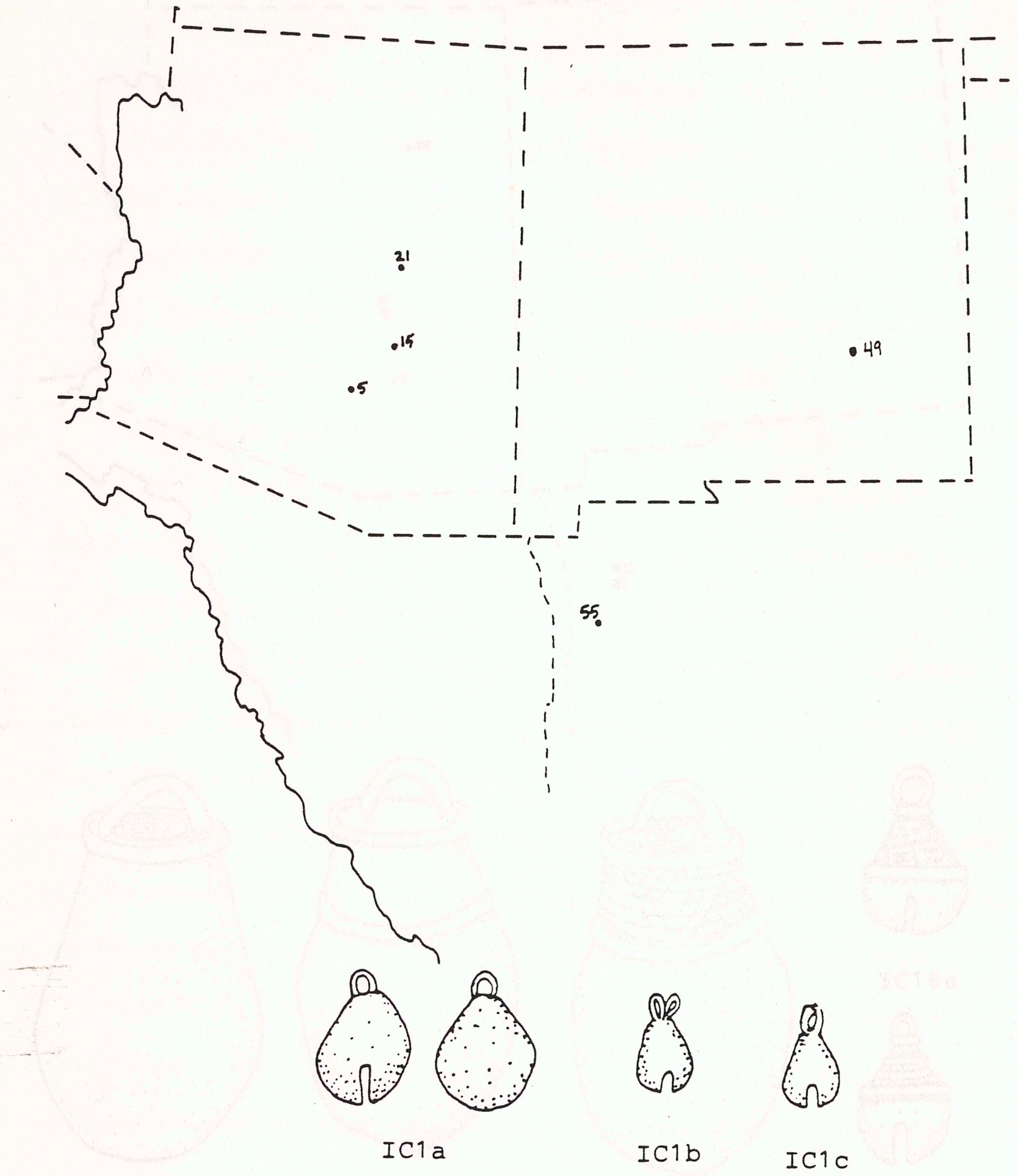
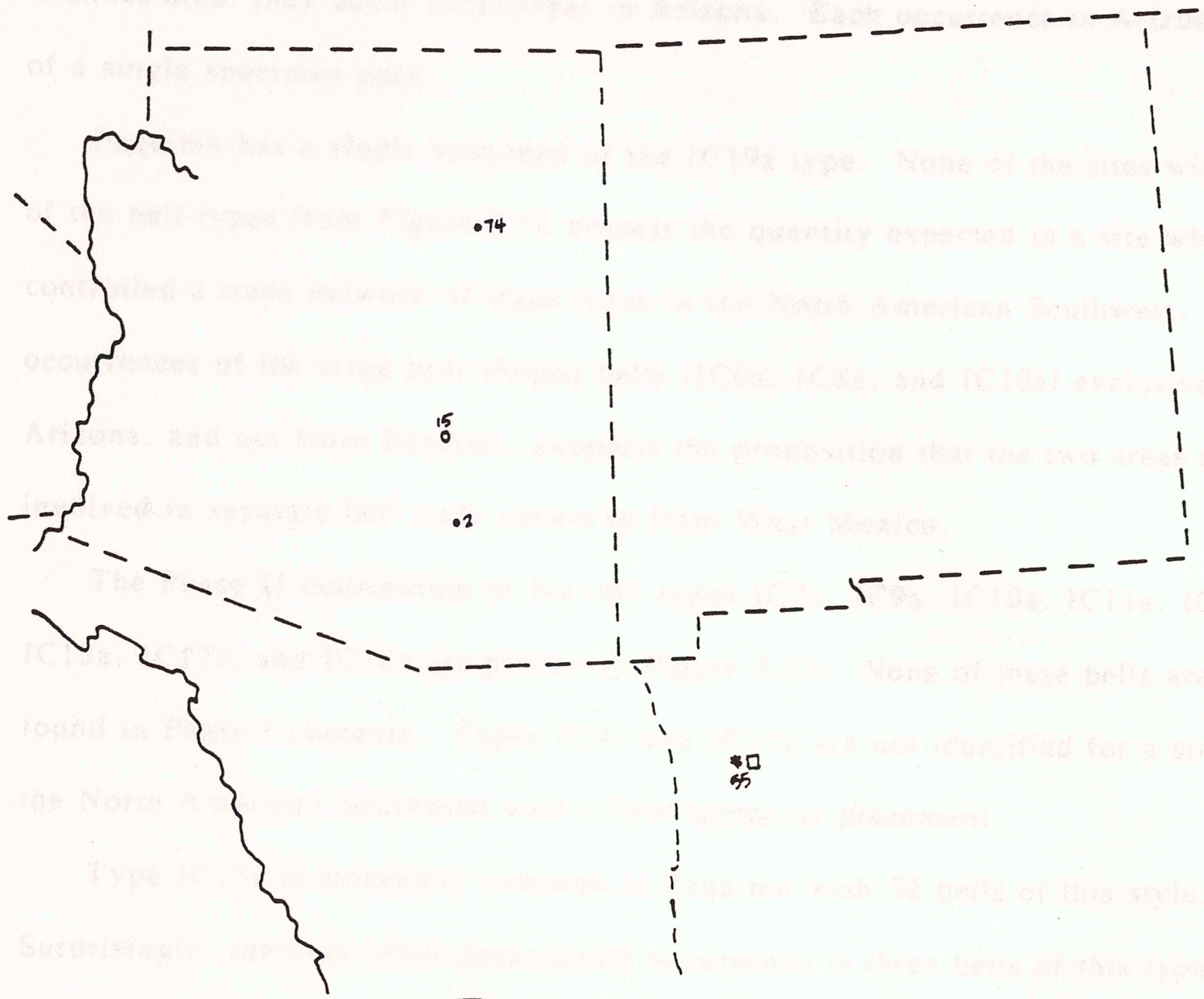


Figure 5.11: Distribution of Phase II Types IC1a, IC1b, and IC1c

Key: IC1a= • IC1b= ▲ IC1c= ◆

5 Casa Grande
15 Gila Pueblo
21 Cherry Creek
49 Bloom Mound
55 Casas Grandes



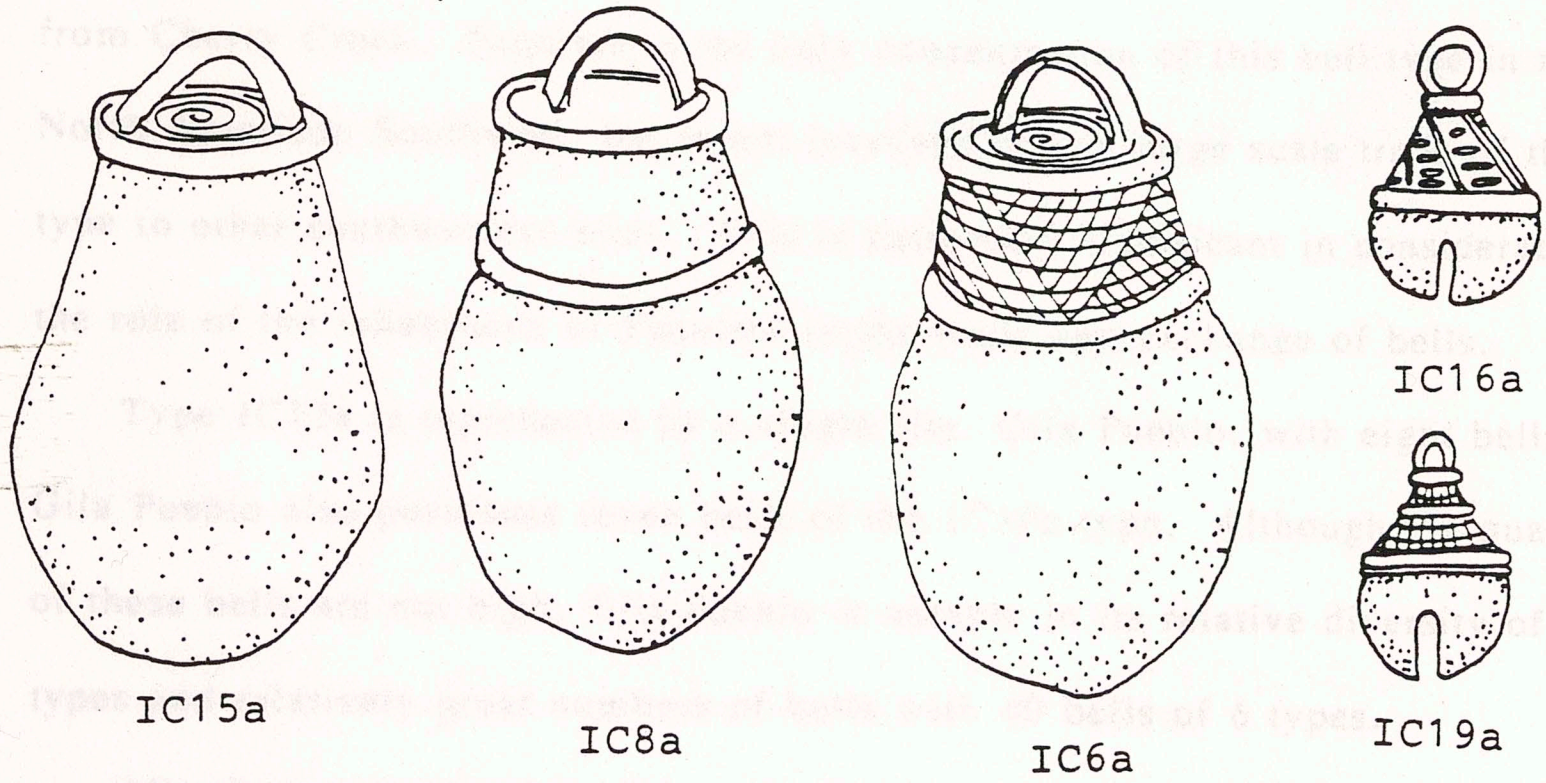


Figure 5.12: Distribution of Phase II Type IC6a, IC8a, IC15a, IC16a and IC19a

Key: IC6a= • IC8a= o IC15a= ▲ IC16a= ✱ IC19a= □

2 Mammoth
74 Homolovi II
15 Gila Pueblo
55 Casas Grandes

Grandes area: they occur exclusively in Arizona. Each occurrence in Arizona is of a single specimen each.

Paquime has a single specimen of the IC19a type. None of the sites with any of the bell types from Figure 5.12 possess the quantity expected in a site which controlled a trade network of these types in the North American Southwest. The occurrences of the large pear shaped bells (IC6a, IC8a, and IC15a) exclusively in Arizona, and not from Paquime, supports the proposition that the two areas are involved in separate bell trade networks from West Mexico.

The Phase II distribution of the bell types IC2a, IC9a, IC10a, IC11a, IC12a, IC13a, IC17a, and IC18a are plotted in Figure 5.13. None of these bells are found in Phase I contexts. Types IC9a and IC17a are not identified for a site in the North American Southwest with a firm temporal placement.

Type IC13a is extremely common at Paquime with 52 bells of this style. Surprisingly, the only other documented occurrence is three bells of this type from Cherry Creek. Paquime is the only concentration of this bell type in the North American Southwest, but is not involved in any large scale trade of this type to other southwestern sites. This is extremely significant in consideration of the role of the inhabitants of Paquime in the trade and exchange of bells.

Type IC12a is represented by a single site, Gila Pueblo, with eight bells. Gila Pueblo also possesses seven bells of the IC10a type. Although the quantities of these bells are not high, Gila Pueblo is notable in its relative diversity of bell types and relatively great numbers of bells with 40 bells of 6 types.

All other types noted on Figure 5.13 are infrequent and have a single type of this grouping represented. The exception is Paquime which contains four of these types: seven IC2a, fifty-two IC13a, one IC18a, and one IC19a. There are only four other known specimens of the IC2a type at other southwestern sites: three at the 76 Ranch and one from Los Hornos. There is nothing in this patterning to

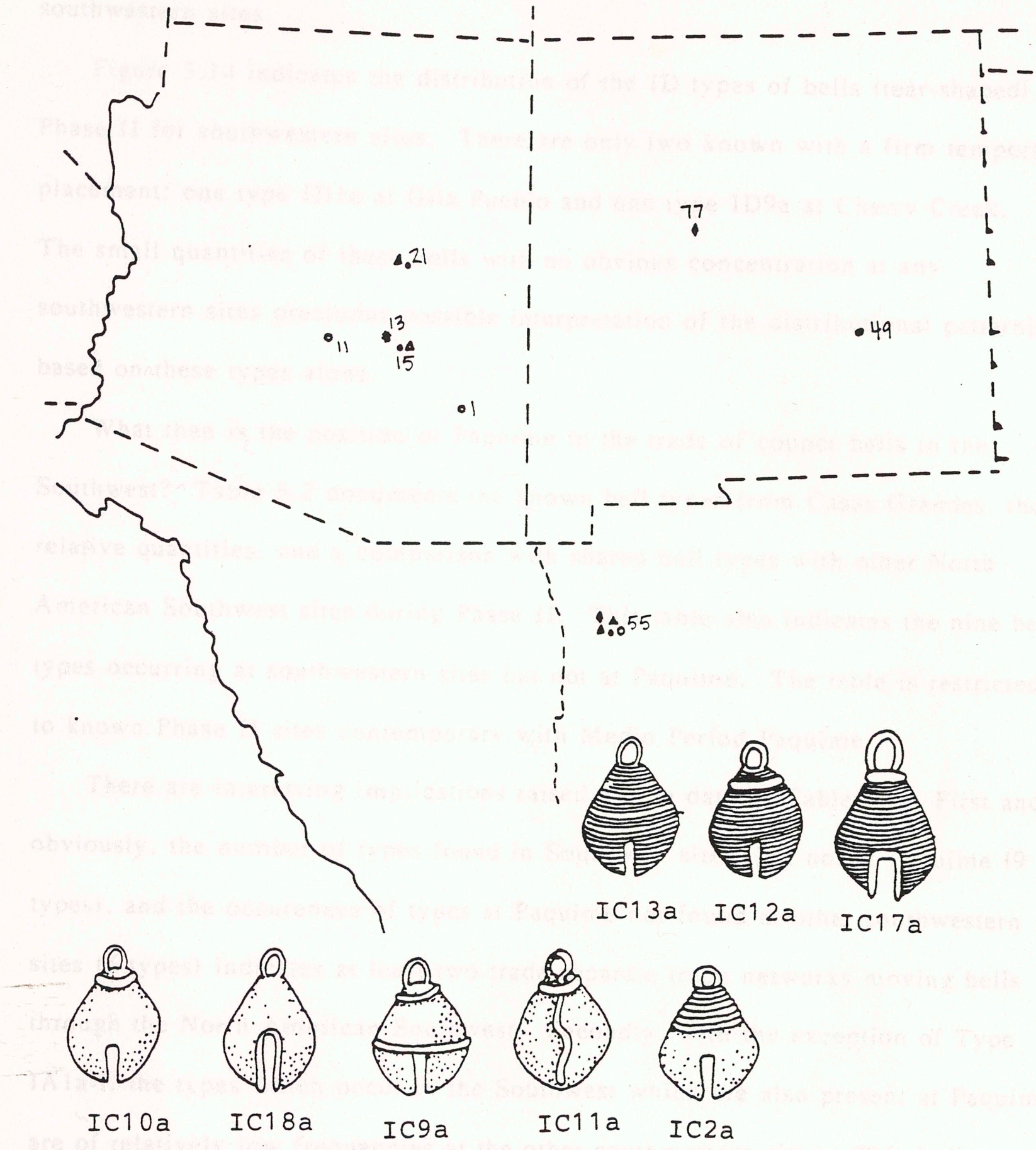


Figure 5.13: Distribution of Phase II Types IC2a, IC9a, IC10a, IC11a, IC12a, IC13a, IC17a, and IC18a

Key: IC2a= ○ IC9a= □ IC10a= • IC11a= ✳

IC12a= △ IC13a= ▲ IC17a= ■ IC18a= ◆

1 76 Ranch
11 Los Hornos
13 Hilltop House
15 Gila Puablo
21 Cherry Creek
49 Bloom Mound
55 Casas Grandes
77 Pottery Mound

suggest Paquime as being the major node which is trading these types to other southwestern sites.

Figure 5.14 indicates the distribution of the ID types of bells (tear-shaped) in Phase II for southwestern sites. There are only two known with a firm temporal placement: one type ID1a at Gila Pueblo and one type ID9a at Cherry Creek. The small quantities of these bells with no obvious concentration at any southwestern sites precludes possible interpretation of the distributional patterning based on these types alone.

What then is the position of Paquime in the trade of copper bells in the Southwest? Table 5.2 documents the known bell types from Casas Grandes. their relative quantities. and a comparison with shared bell types with other North American Southwest sites during Phase II. This table also indicates the nine bell types occurring at southwestern sites but not at Paquime. The table is restricted to known Phase II sites contemporary with Medio Period Paquime.

There are interesting implications raised by the data in Table 5.2. First and obviously. the number of types found in Southwest sites. but not at Paquime (9 types). and the occurences of types at Paquime not found at other southwestern sites (5 types) indicates at least two trade separate trade networks moving bells through the North American Southwest. Secondly. with the exception of Type IA1a-i. the types which occur in the Southwest which are also present at Paquime are of relatively low frequencies at the other southwestern sites. This indicates that if Paquime was indeed trading bells to other sites. the level of this trade is extremely low. The 51 type IA1a-i bells from sites in the North American Southwest other than Paquime are concentrated in the Hohokam/Salado area of Arizona (Figure 5.8) and are widely geographically separated from the site with these bells in New Mexico and the two sites in northwestern Sonora. The IA1a-i

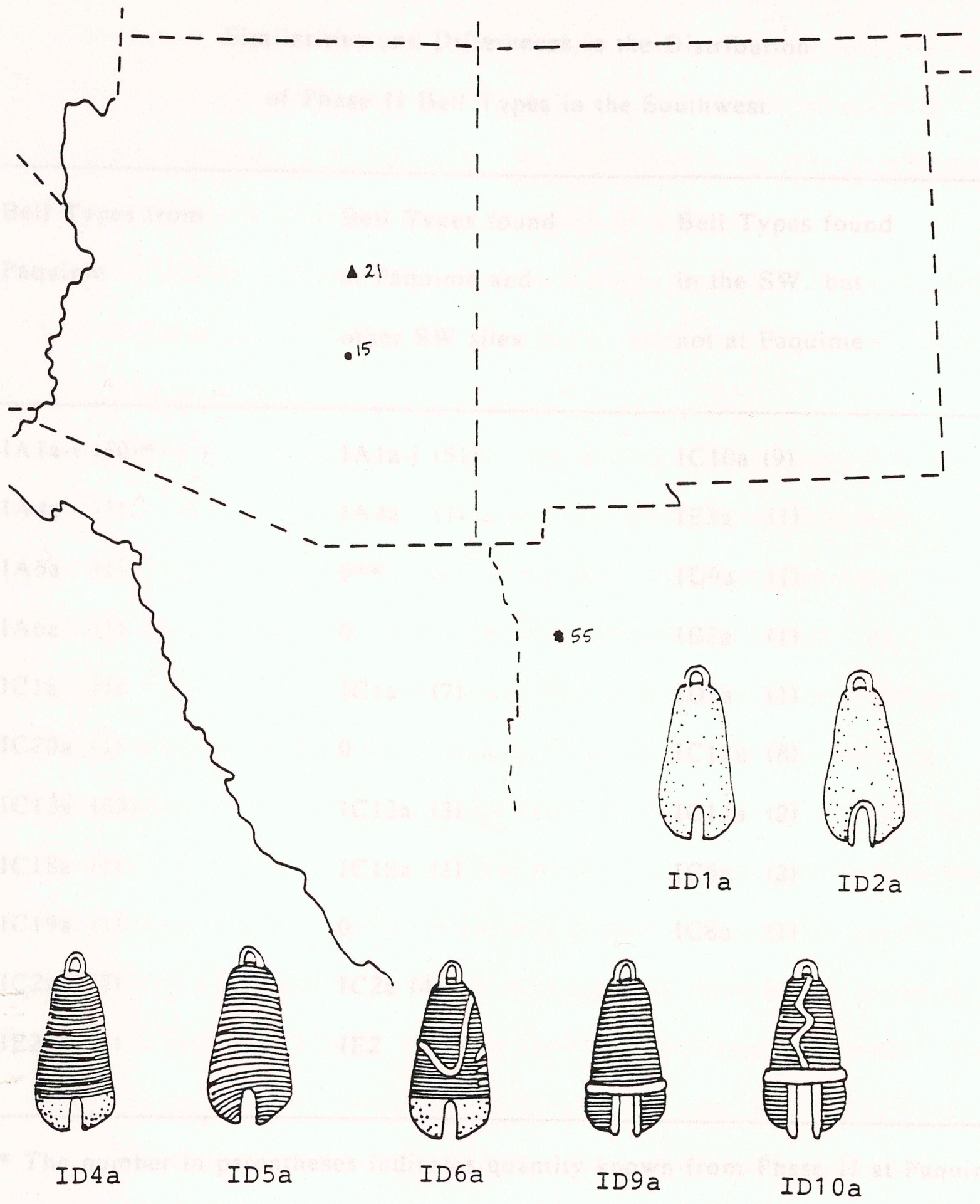


Figure 5.14: Distribution of Phase II Types ID1a, ID2a, ID4a, ID5a, ID6a, ID9a, and ID10a

Key: ID1a= • ID2a= o ID4a= △ ID5a= ✳

ID6a= □ ID9a= ▲ ID10a= ◇

15 Gila Pueblo 21 Cherry Creek

Table 5.2

Similarities and Differences in the Distribution

of Phase II Bell Types in the Southwest

Bell Types from Paquime	Bell Types found at Paquime and other SW sites	Bell Types found in the SW. but not at Paquime
IA1a-i (50)*	IA1a-i (51)	IC10a (9)
IA4a (1)	IA4a (1)	IE3a (1)
IA5a (1)	0**	ID9a (1)
IA6a (1)	0	IB2a (1)
IC1a (1)	IC1a (7)	ID1a (1)
IC20a (1)	0	IC12a (8)
IC13a (52)	IC13a (3)	IC11a (2)
IC18a (1)	IC18a (1)	IC6a (2)
IC19a (1)	0	IC8a (1)
IC2a (7)	IC2a (4)	
IE2 (1)	IE2 (1)	

* The number in parentheses indicates quantity known from Phase II at Paquime in the first column. The quantities in parentheses from the other two columns are from Phase II Southwest sites combined.

**Placement of a "0" in this column indicates the type in the left column, found at Paquime. is not found at other Southwest sites in Phase II.

occurrences in southern New Mexico. northwestern Chihuahua. and northeastern Sonora may have come from Paquime. However. their overall frequency is low.

It is proposed here that there are at least two separate trade networks of copper bells operating during Phase II. One is centered in the Hohokam/Salado area with Gila Pueblo as its probable major node of this trade in this area. Gila Pueblo fullfills the criteria of a major trade node of copper bells by its representation of 40 bells of 6 types and is most likely distributing bells to the other sites in the area.

Paquime has the greatest quantity of bells and the highest diversity of bell types in Phase II. but apparently is involved with only a small scale trade of copper bells to southern New Mexico and the area surrounding Paquime. Paquime is most likely primarily a large end consumer of bells and their distribution within the site indicates concentrations in several areas of the site which may imply restricted access. Strangely. no copper bells are found in burials at Paquime. Burials are the most common context in which copper bells are found at other southwestern sites. Use of the copper bells may be different at Paquime than other sites. Further research is needed to resolve this issue.

Cherry Creek in Phase II. is similar to Wupatki in Phase I as an anomoly. Cherry Creek has only 12 bells. but there are 7 different types represented. Three of the bell styles at Cherry Creek are not found at any other southwestern sites. including Paquime. One of the bell styles not known from other southwestern sites is type IE3a. the rodent shaped bell. This bell type is rare even in West Mexico and the significance of the presence of this bell at Cherry Creek is unclear. The overall low quantity of bells at this site. even though the diversity of types is relatively high. indicates this most likely is not a major node in the trade of copper bells in the area.

The issue is additionally confused due to the association of Cherry Creek material with the Q Ranch site. Cherry Creek is adjacent to Q Ranch and is believed to be part of the latter site (Horne n.d.). Q Ranch is privately owned with a large amount of uncontrolled excavations. Therefore, there is no way to evaluate the site as a whole. It is known, however, that the Q Ranch site is contemporary with Grasshopper (J. Jefferson Reid, personal communication 1994). It is possible that the inhabitants of this site (Q Ranch) were involved in direct contact with West Mexico, which would explain the bell types which occur there (at Cherry Creek which is part of the Q Ranch site) but not at other southwestern sites. The Cherry Creek material must remain an enigma for now.

However, there may be a valid explanation for the absence or rarity in the North American Southwest of bell types that are found in some quantity at West Mexican sites. Examples of these bells would be the type IA5a (the Tlaloc bell) and the ID (tear shaped) bell styles. It is possible that, as Hosler has proposed (1986), certain bell types may have been in the control of the elite in West Mexico. If this is the case, then it is also possible that some bell types may have been utilized as status markers in West Mexican societies. It would explain an unequal representation of types in the North American Southwest.

Hosler (1986) shows that copper items of elite symbolism from Central and South America (the areas attributed with introducing metallurgy to West Mexico) were not repeated in West Mexico. The people of West Mexico were taught how to make a less symbolically significant set of copper artifacts, which they further embellished and attached meaning to. Elite items were then selected out of the repertoire for restricted use and status markers (e.g., decorative twezers and certain bell types). The continuation of this pattern (i.e., not trading many symbolically or elite restricted copper artifact types) in trade with the North

American Southwest is expected and the evidence appears to support the possibility.

It is also important to note that outside of Paquime, very few copper artifacts besides bells have been located. This may imply a special relationship between Paquime (which has a variety of copper artifact forms) and West Mexico. Interestingly, the only other site in the North American Southwest with copper artifacts other than bells is the Gatlin site, the proposed major node of copper bell trade in the Southwest during Phase I, which has a copper tweezer fragment and several large copper rings. However, these data are from uncontrolled excavations and cannot be confirmed, nor confidently dated. A couple of copper pendants shaped like animals have been recorded for the North American Southwest, however their exact provenience and temporal placement are not known (Withers 1946).

In summary, Phase II is characterized by at least two separate copper bell networks. One is centered in the Hohokam/Salado region and Gila Pueblo is identified as a probable major node in the distribution of bells in this region. The other network appears to be concentrated at Paquime. However, the distributional data do not support the idea that Paquime was involved in large scale trade of bells to other southwestern sites. Cherry Creek may have some type of direct contact with West Mexico due to the bell types that occur there but not at any other southwestern sites. However, the overall low quantity of bells from Cherry Creek indicates it is not a major node in the trade of bells.

As in Phase I, the distribution and quantity of bells in Phase II which are concentrated at several sites, is not consistent with down-the-line trade. Down-the-line trade should be exhibited by a frequency fall-off of the trade good as one moves away from the source, which in this case is argued to be West Mexico. There are nodes of concentrations of bells at Paquime and Gila Pueblo and the

inter-site and intra-site distribution appears to reflect restricted access to these bells. The pattern once again appears to be that of a prestige goods network operating in the Hohokam/Salado area of Arizona.

Paquime, however appears to be acquiring bells primarily for local consumption, rather than for trade to other sites which might act to create alliances. Only a few sites appear to have acquired bells from Paquime and the quantity of bells at these sites is low. It is possible that Paquime is acquiring bells for local elites and the distribution of these bells may be for the solidification of alliances within the site and the area directly surrounding Paquime (the Casas Grandes area), rather than between sites. It is one among several possible explanations and further research is needed to resolve this issue.

The overall patterning between Phase I and Phase II reflects a change in copper bell trade between West Mexico and the North American Southwest. As in Phase I, there is once again a major node in copper bell trade identified in Arizona in Phase II. However, in Phase I the major node identified is a Hohokam site and in Phase II the major node is a Salado site. The significance of this is unclear due to the lack of consesus among southwestern archaeologists of the relationship between the cultural categories of Hohokam and Salado. The emergence of Paquime in Phase II as a major consumer of copper bells is also a change from identified patterns in Phase I. It is clear that the trade networks involved in the distribution of copper bells in the prehistoric North American Southwest are far more complex than have been previously appreciated.

Chapter 6

Conclusions

The research presented here has concentrated upon the interaction between the North American Southwest and Mesoamerica based upon the stylistic, temporal, and geographic distribution of copper bells from prehistoric southwestern sites. The primary data base used for this analysis is an updated copper bell inventory with 615 bells from 94 sites in the North American Southwest, an increase of 117 bells from the last inventory. Pendergast's (1962a) copper bell typology has been revised and expanded to facilitate the study of specific copper bell styles. These data are evaluated against models of exchange including down-the-line trade, nodal exchange, world systems, and a prestige goods network. Consideration is also given to the implications of copper bell trade for emerging "elites" in the North American Southwest.

Di Peso's argument (1974) for copper metallurgy at Paquime during the Medio Period has had considerable influence on discussions of possible interaction between the North American Southwest and Mesoamerica. Many archaeologists accepted Paquime as the likely source of copper bells appearing at other southwestern sites; therefore there was no need to identify a mesoamerican source for the bells. However, the available evidence does not support the presence of copper metallurgy at Paquime. Consequently, to better understand the distribution of copper bells in the North American Southwest the possible origin of the bells is investigated.

West Mexico appears to be the likely source of copper bells found in the North American Southwest, including Paquime. This is supported by the presence in West Mexico of all the bell types located at southwestern sites. The correlation of the copper bell data from the North American Southwest with

the stylistic and technological chronology of West Mexican copper metallurgy recently developed by Hosler (1986) provides additional support for West Mexico as the origin of southwestern bells.

Hosler's (1986) chronology for West Mexican metallurgy is divided into two main phases which provide a convenient framework for analyzing the temporal distribution of bell styles in the North American Southwest. Phase I (A.D. 800-1250) includes all the occurrences of copper bells prior to the Medio Period at Paquime. Copper metallurgy in Phase I is characterized by a primarily pure copper composition of bells and stylistically simple bell styles. Phase II (A.D. 1251-1520) metallurgy in West Mexico is characterized by the use of copper alloys enabling more complex bell designs with thinner resonator walls. Phase II coincides nicely with the Medio Period at Paquime (A.D. 1250 to 1450-1500) and permits a tighter temporal control for evaluating the position held by Paquime in the trade of copper bells to other southwestern sites. Therefore, the use of Hosler's technological chronology provides the necessary separation of sites prior to and contemporary with Paquime's Medio Period.

In Phase I bells cluster in the Hohokam region, the Flagstaff area, Chaco Canyon, and the Mimbres Valley. During Phase I, the greatest quantities and diversity of bell types occur exclusively in the Hohokam region. This area may have had a direct trade relationship with West Mexico. The Gatlin site, in particular, may have held a primary node position in the trade of copper bells, acquiring them from West Mexico and distributing them to other southwestern sites in Phase I. The Gatlin site has 55 bells of 6 types and all of the bell types from other Phase I sites, with the exception of a single example of the type IA5a (the Tlaloc bell), are represented at Gatlin. This site meets the criteria for being a primary node in the exchange of copper bells: a relatively great quantity of bells and a high diversity of types.

Snaketown, also a Hohokam site, may be a minor node in the exchange of the bell type IC14a and the derived type IC7a in Phase I. Snaketown has the greatest quantity of these bells with 28 bells of the IC14a type from a single "storehouse" context. It is uncertain if Snaketown acquired these bells from Gatlin or directly from West Mexico. It is also unclear if Snaketown, rather than Gatlin, was involved in distributing these bells to other Phase I southwestern sites.

The overall distribution between sites and within sites during Phase I implies restricted access to copper bells. It is proposed, based on this restricted access that there is a prestige goods network operating with these bells. Big-persons or emerging "elites" in the Hohokam region may be distributing bells in a restricted manner to individuals at sites within the area. Chaco Canyon, and the Mimbres Valley in order to create alliances/support and gain prestige. Interestingly, the four bell types known for the Mimbres Valley area and the three types from Chaco Canyon, are all represented in the Hohokam area in some quantity, and the Gatlin site possesses all of these types.

The main concentrations of sites with copper bells in Phase II occur in one cluster in the Hohokam/Salado region of Arizona including a group of sites in the Sinagua area located southwest of Flagstaff and a second cluster is located around Paquime. The small number of sites with bells located near Paquime in northwestern Chihuahua is most likely due to the lack of excavation. Paquime has 117 bells of 11 types, far and above the greatest quantity of bells and largest diversity of types known for the North American Southwest.

However, Paquime appears to be primarily a large-end consumer of bells and only involved in small-scale trade of a few bells northward to several sites in the southern portion of New Mexico and perhaps to northeastern Sonora. This is supported by nine bell types occurring in the Hohokam/Salado region which do

not occur at Paquime. In addition, there are eight sites in Arizona which have bell types which do not occur at Paquime. The Hohokam/Salado do not appear to be trading bells to Paquime due to several types at Paquime which do not appear in Arizona. Therefore, it is proposed that there are at least two distinct copper bell trade networks operating differently in each area.

The first network centers in the Hohokam/Salado area and the major node of this trade network appears to be Gila Pueblo based upon the relatively great number of bells and diversity of types at this site during Phase II (40 bells of 6 types). Gila Pueblo seems to hold a similar position in Phase II as the Gatlin Site does in Phase I. Bells may be acquired directly from West Mexican trade and access is restricted within the North American Southwest. Once again, a prestige goods network is proposed for this trade patterning based upon the inter-site and intra-site distribution of the bells which reflects possible restricted access to these goods by certain individuals or groups.

The second network centers at Paquime, but appears to be mostly for local consumption, not for trade to other southwestern sites. Copper bells at Paquime are limited to several areas of the site and may reflect an intra-site restricted access. Elites within Paquime may be building support and/or prestige by distributing bells to certain individuals or groups within the site. Only a few sites in southern New Mexico and northeastern Sonora may have received bells from Paquime. It is possible that Paquime is acquiring bells directly from West Mexican trade.

However, the situation at Paquime is extremely different from sites linked to the Arizona region network in that Paquime also acquires other forms of copper artifacts besides copper bells such as needles, back shields, and armlets, among others, from West Mexico which are not found at any other southwestern sites. Furthermore, at Paquime bells are not found in burials, although that is the most

common context bells are found in at other southwestern sites, including some sites in northern Chihuahua which are quite close to Paquime. The significance of this is unclear at this time, but deserves investigation in the future.

The final question then is whether or not the North American Southwest is a periphery of a mesoamerican world economy. Central to any argument of assigning specific roles of a world-economy, such as the North American Southwest as a periphery, is the presence of a core state. West Mexico during Phase I and Phase II does not develop the state which is necessary to exploit a periphery until after the decline and abandonment of Paquime and the almost complete cessation of copper bell trade in the North American Southwest. Additionally, it has not been shown that West Mexico is a semi-periphery exploiting the North American southwest for some other core state.

Although it cannot be shown with the available evidence that the North American Southwest is a periphery of a mesoamerican core, it is possible to consider its position as a contact zone. A contact zone is an area which may have market articulation with a world economy but is not integrated into the world economy by peripheralization or dependancy. Therefore, if it can be shown that West Mexico is indeed part of a mesoamerican world economy during the time prior to the rise of the Tarascan statehood and expansion (contemporary with the decline of Paquime [see Pollard 1993]), it does not necessarily follow that the North American Southwest is integrated into this world system.

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Appendix 1

Notes and Sources

This section is organized based upon the "notes and sources" number listed in the N&S column of Table 4.2, Appendix II, and Appendix III. It encorporates all the known sources for the cited data and provides notes on changes made from Sprague and Signori's (1963) copper bell inventory as well as any additional information not included in the primary data presentation in Table 4.2, Appendix II, and Appendix III.

1. 76 Ranch:
(Pendergast 1962:524; Root 1952:21; Sprague and Signori 1963:7; Withers 1946:36). Pendergast refers to this site as Bonita. Bell Type Changed. Viewed bells at ASM.

2. Alamogordo:
(Lehmer 1948:70; Sprague and Signori 1963:15). No notes

3. Alder Wash:
(Nelson 1986:Table 4). No notes.

4. Apache Creek:
(Peckham et al. 1956:55-56; Sprague 1964:21). Old catalog # 30/3193. Site also known as LA 2949. Viewed bell at Museum of New Mexico.

5. Armour's Ranch:
(Bandalier 1892:421; Sprague and Signori 1963:10; Withers 1946:29). Bell is lost.

6. Aztec Ruin Area:
(Sprague and Signori 1963:12; Withers 1946:23). Viewed bell at Museum of New Mexico. The bell is from the Howe farm adjoining Aztec Ruin.

7. Aztec, West Ruin:
(Morris 1919:100; Sprague and Signori 1963:12; Withers 1946:22-23). No notes.

8. Babbitt Ranch:
(Sprague and Signori 1963:14). From St. Johns.

9. Bis san'ani Ruin:
(Breternitz, et al. 1982:443). Bonito Phase.

10. Bloom Mound:
(Holden 1955:179; Sprague and Signori 1963:15; Regge Wiseman, personal communication 1994, 1970:6-8). No notes.

11. Bloom Mound:
(Sprague and Signori 1963:15; Regge Wiseman, personal communication 1994, 1970:6-8). Three bells are lost. Based on illustrations I changed their type. Overall quantity was changed from Sprague and Signori (1963:15) due to personal communication with Regge Wiseman.

12. Cameron Creek Village:
(Bradfield 1931:124; Sprague and Signori 1963:14; Withers 1946:25-26). Viewed bell at Museum of New Mexico. Changed type. Personally reviewed W. Bradfield's field notes at MNM and the original quantity of 6 bells cited for this site by Sprague and Signori (1963) is incorrect, as they suspected. The museum no longer attributes the other five to Cameron Creek.

13. Canyon de Flag:
(Sprague and Signori 1963:7; Withers 1946:22). Also called Rio de Flag and San Francisco MT:14:1. Viewed bells at Arizona State Museum.

14. Casa Grande:
(Fewkes 1912:148, 176; Judd 1954:111; Root 1952:21; Sprague and Signori 1963:7; Withers 1946:28). No notes.

15. Casa Grande:
(Fewkes 1912:148, 176; Judd 1954:111; Eoor 1952:21; Sprague and Signori 1963:7; Withers 1946:28). No notes.

16. Casa Grande:
(Gladwin and Gladwin 1935:235; Sprague and Signori 1963:7; Withers 1946:28). No notes.

17 and 18. Casa Grande:
(Sprague and Signori 1963:7). No notes.

19. Casa Grande:
(Sprague and Signori 1963:7). "The eyelet and top portion of the resonator body of a probable Type IC1a bell" (Sprague and Signori 1963:7).

20. Casa Grande Area:
(Sprague and Signori 1963:7). This bell is from the Farnsworth farm, west of Casa Grande.

21. Casa Riconada:
(Sprague and Signori 1963:14; Vivian and Reiter 1960:24). No notes.

22 and 23. Casas Grandes:
(Sprague and Signori 1963:16; Withers 1946:40). No notes.

24. Casas Grandes Area:
Source: catalog card at Museum of New Mexico. Old catalog no. DCG 26/12a.

25. Casas Grandes Area:
(Sprague and Signori 1963:17). Old catalog no. DCG26/12.

26. item deleted from inventory.

27. Casas Grandes Area:
Source: catalog card at Museum of New Mexico. Donated from Ledwidge Collection. Viewed at Museum of New Mexico.

28 and 29. Casas Grandes Area:
(Narez 1991:307-308). No notes.

30. Casas Grandes:
Source: catalog card at Arizona State Museum. Viewed bells at ASM.

31. Casas Grandes Area:
(Root 1952:22; Sayles 1936:58-59; Sprague and Signori 1963:16; Withers 1946:30). Viewed bells at Arizona State Museum. Changed bell type. Only 24 of the 37 located.

32. Casas Grandes Area:
(Root 1952:22; Sprague and Signori 1963:16; Withers 1946:30).

33-35. Casas Grandes Area:
Source: catalog card at Arizona State Museum. Entire group viewed at ASM. These bells were found together in a cache near Casas Grandes with a small flat copper mask with 6 small shells and 7 small pieces of turquoise embedded within the dirt encrusted to the concave side of the mask, a simulated wirework pendant, a rectangular copper sheet with a flat disk of turquoise which was once adhered to its center, flat copper sheet fragments, 2 small (.9 cm. dia.) copper wire rings (circles) (.2 cm. thick), two larger (2.7 and 2.8 cm. dia.) circular pieces of wire (.5 cm. thick), 2 copper tinkler-like objects with wood still embedded within them (spear heads?). The latter are not perforated for stringing. The exact location of this find is not known.

36. Casas Grandes Area:
(Sprague and Signori 1963:16; Withers 1946:41). Changed type based on illustration.

37. Casas Grandes Area:
(Sprague and Signori 1963:16; Withers 1946:40). Changed type based on illustration.

38. Casas Grandes Area:
(Sprague and Signori 1963:16; Withers 1946:30). No notes.

39. Casas Grandes Area:
(Phillips 1992:34-35; Sprague and Signori 1963:16; Withers 1946:30). Two of these bells are now numbered 375863, Three bells reportedly given to Kenyon College.

40. Edge of the Cedars Ruin:
(William Lipe, personal communication 1993; Jay Palmer, personal

communication 1994). At the time of this report, no additional information received on this occurrence.

41. Chavez Pass:
(Fewkes 1904:111; Root 1952:21; Sprague and Signori 1963:11; Sprague 1964:22: Withers 1946:27). Catalog number shown in Sprague and Signori's (1963) inventory as 157893 is corrected in Sprague's (1964) update to 157839.

42-48. Cherry Creek:
(Vargas, personal field notes from viewing collection). This site is near Young, AZ. and is part of the Q Ranch Site. Private Collection of John and Frances Horne.

49. Item deleted from inventory.

50. Copper Bell House:
(Phillip Huld, personal communication 1994). Found with *Olivella* shell beads and a child skull fragment.

51. Copper Bell Ruin:
(David Wilcox, personal communication 1993). MNA Site NA 998.

52 and 53. Cox Ranch:
(Root 1952:21; Sprague and Signori 1963:15; Withers 1946:35, 39). Types both changed based on illustrations.

54. Delgar Ruin:
(Hough 1907:12, 1914:37-38; Judd 1954:111; Sprague and Signori 1963:14; Withers 1946:8). Also called Tularosa Canyon. Changed bell type based on illustration.

55. Delgar Ruin:
(Duff 1897:14; Sprague and Signori 1963:14). No notes.

56. Dona Ana Target Range:
(Crimmins 1937:34; Sprague and Signori 1963:15; Sprague 1964:23; Withers 1946:31). No notes.

57. Item deleted from inventory.

58. Flagstaff Area:
(Sprague and Signori 196312). From the Meade Collection. Exact location of this occurrence is unknown.

59. Foote Canyon Pueblo:
(Rinaldo 1959:274-276; Sprague and Signori 1963:14). No notes.

60. Four Mile Ruin:
(Fewkes 1898a:608; Judd 1954:111; Sprague and Signori 1963:14; Sprague 1964:23; Withers 1946:34). Type changed based on illustration.

61. Galaz Ruin:
(Anyon and LeBlanc 1984:307). Anyon and LeBlanc (1984) believe there to be

only 4 bells total from this site. There has been some confusion whether there were 4 or 5 bells.

62. Galaz Ruin:
(Anyon and LeBlanc 1984:307; Sprague and Signori 1963:14). See notes under 61.

63. Galaz Ruin:
(Anyon and LeBlanc 1984:307; Bryan 1931:41; Sprague and Signori 1963:14; Withers 1946:26). See notes under 61.

64. Galaz Ruin:
(Anyon and LeBlanc 1984:307; Sprague and Signori 1963:15). See notes under 61.

65. Gatlin Site:
(Nelson 1986:162; Sprague and Signori 1963:7; Wasley 1960:259-260). Viewed at ASM. Site AZ Z:2:1.

66. Gatlin Site:
(Nelson 1986:162; Sprague and Signori 1963:7; Wasley 1960:259-260). Viewed at ASM. Changed type. Site AZ Z:2:1.

67. Gatlin Site:
(Nelson 1986:162; Sprague and Signori 1963:8; Wasley 1960:259-260). Viewed at ASM. Changed type. Site AZ Z:2:1.

68-71. Gatlin Site:
(Nelson 1986:162; Sprague and Signori 1963:8; Wasley 1960:244-245). Private collection of Norton Allen.

72 and 73. Gatlin Site:
(Nelson 1986:162; Sprague and Signori 1963:8-9; Wasley 1960:244-245). Private collection of Frank Midvale.

74. Gatlin Site:
(Nelson 1986:162; Sprague 1964:21; Wyeth 1954:137). Private collection of Mrs. Margaret Cross.

75. Gila Pueblo:
(Sprague and Signori 1963:10). Viewed at ASM. Suspension loop only.

76. Gila Pueblo:
(Sprague and Signori 1963:10). This specimen is cited as being destroyed in analysis. May be part of original 20 bells from catalog no. GP7323 from ASM.

77. Gila Pueblo:
(Sprague and Signori 1963:10). "Probably part of the 20 original GP7323. Permanent loan to Denver Museum of Natural History. Incorrectly identified as Chihuahua" (Sprague and Signori 1963:10).

78. Gila Pueblo:
(Shiner 1961:7; Sprague and Signori 1963:10). No notes.

79. Gila Pueblo:
(Sprague and Signori 1963:10). Viewed at ASM. Changed the type of 7 of the 15 bells under this catalog #. Sprague and Signori (1963) cite this as possibly being part of the original 20 from GP7323.

80. Gila Pueblo:
(Sprague and Signori 1963:10). May be part of the original 20 from GP7323.

81. Gillespie Dam Site:
(New Mexico State University C.R.M.). All bells were declared lost after an exhibit at the Oil Company. When they were originally found in the field, they were accompanied by over 900 shell beads. Site # 74-002. Part of the All American Pipeline Project.

82. Globe Area:
(Sprague and Signori 1963:10). Private collection of Edith Latham, Globe. Found approximately 15 miles southwest of Globe on hog Mountain. Badly crushed.

83. Goodman Point:
(Hayes and Chapell 1962:53-56; Sprague and Signori 1963:12). Changed type based on illustration.

84. Grasshopper:
(J. Jefferson Reid, personal communication 1993; Barbara Montgomery, personal communication 1993). No notes.

85. Hilltop House:
(Hawley [Florence M.] 1932:233; Sprague and Signori 1963:10; Withers 1946:38). Changed type based on illustration.

86. Hilltop House:
(Hawley [Florence M.] 1932:233; Root 1952:21; Sprague and Signori 1963:9: Withers 1946:38). No notes.

87. Hodges Site:
(Nelson 1986:163). No information about this occurrence in catalog or the final report.

88. Homestead Site:
(Sprague and Signori 1963:9). Private collection of Norton Allen.

89. Gila Pueblo:
(Sprague and Signori 1963:10; Withers 1946:14). Changed type based on illustration.

90. Gila Pueblo:
(Sprague and Signori 1963:10; Withers 1946:29). These 20 bells are extremely problematic. Only one bell now exists under this catalog # and Sprague and Signori (1963) cite it as not matching measurements provided by Withers (1946). Withers only located 18 of these in 1946. In addition, the other specimens noted as possibly being from the original 20 also do not match the measurements provided by Withers (1946).

91. Homolovi II:
(Charles Adams, personal communication 1994). Only the top platform with a spiral raised design was found. I typed it as IC6a, but could also be IC15a. A similar floor layer was associated with Sikyatki Polychrome Pottery.

92. Kinishba:
(Cummings 1940:62; Sprague and Signori 1963:11). No notes.

93. Kinishba:
(Cummings 1940:62; Sprague and Signori 1963:11; Withers 1946:27). Viewed at ASM. Changed type. Found with Four Mile and Gila Polychrome.

94-96. Kuykendall Site:
(Sprague 1964:20). Private collection of Jack P. and Vera M. Mills.

97. La Ciudad:
(Sprague and Signori 1963:9). Salado. Private collection of Frank Midvale. Child's burial. Associated with Gila Polychrome jar. Cloth still adhering in places to the bell. May have originally been 3 bells.

98. Las Colinas:
(Nelson 1986:162). No notes.

99. Las Cruces:
(Lehmer 1948:53; Sprague and Signori 1963:15). Several from private collections.

100. Livingston Ruin:
(Root 1952:21; Sprague and Signori 1963:11; Withers 1946:35). Possibly 3 more from this site.

101. Los Hornos:
(Haury 1945:183; Nelson 1986:162; Root 1952:21; Sprague and Signori 2963:9; Wilcox, et al. n.d.; Withers 1946:35-36). Changed type based on illustration. Nelson (1986) shows type IA1a-i for this occurrence.

102. Los Morteros:
(Ritch Lange, personal communication 1993). Viewed at ASM.

103. Los Morteros:
(Wallace 1993; Arthur Vokes, personal communication 1993). Viewed at ASM. Accession # 90-115. Tanque Verde Pottery associated with this find.

104. Mammoth (Big Bell Site):
(Haury 1947; Sprague and Signori 1963:7; Withers 1946:8-9). ASM Site AZ BB:6:2. Viewed at ASM. Sprague and Signori(1963) incorrectly identify this bell as type IC2a. Sprague (1964) corrects this error.

105. Maricopa Road Site:
(Ravesloot and Lascaux 1993:43). This site is about 5 miles west of Snaketown.

106. Marana:
(Sprague 1964:20). Private collection of R.G. Vaughn, Tucson.

107. Marana:
(Hawley [Fred G.] 1953:101; Root 1952:21; Sprague and Signori 1963:7; Sprague 1964:21). Private collection of R.G. Vaughn, Tucson.

108. Mattocks Ruin:
(Nesbitt 1931:91; Root 1952:21; Sprague and Signori 1963:15; Withers 1946:25). No notes.

109-111. McSherry Ruin:
(Sprague and Signori 1963:11; Sprague 1964:23). Sprague and Signori (1963) cite this as McSheery Ruin, Sprague (1964) corrects this error. Gila Pueblo Survey site# NM Q:5:2.

112 and 113. Miami Area:
(Hawley [Fred G.] 1953:100; Sprague and Signori 1963:10). No notes.

114. Mogollon Rim:
Source: catalog card ASM. Viewed at ASM. Is listed in this inventory as ID4a, but also has a raised lip around resonator mouth.

115. Mt. Riley Area:
(Sprague and Signori 1963:15; Withers 1946:31). Viewed at ASM. Old Catalog # 30/1956 from Lab of Anthropology.

116. NA 627:
(Root 1952:21; Sprague and Signori 1963:11; Withers 1946:22). Private collection of J.C. Clarke. From the Flagstaff area.

117. Casa Grande Area:
(Sprague and Signori 1963:7). From the Farnsworth Farm west of Casa Grande.

118. Chiracahua Mt. Area:
(Hawley [Fred G.] 1953:101; Sprague and Signori 1963:15). No notes.

119-123. Gatlin Area:
(Vargas 1993, personal field notes from viewing collection). Private collection of John and Frances Horne.

124. Gila River Area:
(Vargas 1993, personal field notes from viewing collection). Private collection of John and Frances Horne.

125. Ojo de Agua:
(Braniff 1985:309, 356-360). Site # H:2:2.

126. Old Town:
(Sprague and Signori 1963:15). Viewed at Museum of New Mexico. Old Catalog # SAR-57 BOT 26/1.

127. Osborn Ruin:
(Sprague and Signori 1963:15). Viewed at Museum of New Mexico. Old Catalog # bamt 26/10.

128. Osborn Ruin:
(Sprague and Signori 1963:15). Viewed at Museum of New Mexico. Old Catalog # bamt 26/12. Changed bell type.

129. Osborn Ruin:
(Sprague and Signori 1963:15). Viewed at Museum of New Mexico. Old Catlog #s 26/2-26/9.

130. Point of Pines Ruin:
(Sprague and Signori 1963:14). ASM Site W:10:50.

131. Pinnacle Peak:
(Pat Gilman, personal communication 1994; Scottsdale Airpark News 1988). No notes.

132. Pollock Site:
(Sprague and Signori 1963:11). MNA Site NA 4317. Dates added from Dean and Ravesloot (1993).

133. Pottery Mound:
(Linda Cordell, personal communication 1993). Viewed at the Maxwell Museum of Anthropology. From a midden-like context on the plaza floor.

134. Prescott Area:
(Sprague and Signori 1963:11). No notes.

135. Pueblo Alto:
(Mathien 1987). Site 29SJ 389.

136. Pueblo Bonito:
(Pepper 1920:269; Sprague and Signori 1963:12; Withers 1946:22-23). No notes.

137. Pueblo Bonito:
(Sprague and Signori 1963:13; Withers 1946:10-11). No notes.

138. Pueblo Bonito:
(Pepper 1920:373; Sprague and Signori 1963:13; Withers 1946:24). No notes.

139. Pueblo Bonito:
(Sprague and Signori 1963:13; Withers 1946:11). No notes.

140. Pueblo Bonito:
(Sprague and Signori 1963:13; Withers 1946:24). No notes.

141. Pueblo Bonito:
(Pepper 1920:324-325; Sprague and Signori 1963:13; Withers 1946:20). No notes.

142. Pueblo Bonito:
(Pepper 1920:324-325; Sprague and Signori 1963:13; Withers 1946:24). No notes.

143. Pueblo Bonito:
(Judd 1954:109, 111, 380; Root 1952:21; Sprague and Signori 1963:13; Withers 1946:23). No notes.

144. Pueblo Bonito:
(Judd 1954:109, 111-112, 380; Root 1952:21; Sprague and Signori 1963:13; Withers 1946:23). No notes.

145. Pueblo Bonito:
(Judd 1954:112; Sprague and Signori 1963:13; Sprague 1964:23; Withers 1946:9-10). No notes.

146. Pueblo Bonito:
(Judd 1954:112; Sprague and Signori 1963:13). No notes.

147. Pueblo Bonito:
(Judd 1954:109, 112, 380; Sprague and Signori 1963:13; Withers 1946:9-10). No notes.

148. Pueblo Bonito:
(Judd 1954:109). No notes.

149. Pueblo Grande:
(Nelson 1986:162). No notes.

150. Pueblo Grande:
(Withers 1946:28). Listed by Withers as La Ciudad Ruin.

151. Pueblo del Arroyo:
(Judd 1954:112, 1959:86, 125; Root 1952:21; Sprague and Signori 1963:13; Withers 1946:10). No notes.

152. Pueblo del Arroyo:
(Judd 1959:24, 125; Sprague and Signori 1963:13). No notes.

153. Pueblo del Arroyo:
(Judd 1954:112, 1959:125; Sprague and Signori 1963:13). No notes.

154. Pueblo del Monte:
(Nelson 1986:161-162). Nelson cites that there is no information available on this bell.

155. Q Ranch:
(James Cunkle, personal communication 1994). From a burial located about 60 meters from the ranch house to the north, in the ranch driveway. Types of bells unknown; whereabouts also unknown. Included in the burial was an adult male with the 6 bells, a bow, a quiver, and several arrows. The interred male was also holding a "wand". Sister site to Grasshopper. Cherry Creek lies on one side of this property and is part of the site.

156. Red Rock Area:
(Sprague and Signori 1963:12; Withers 1946:24). No notes.

157 and 158. Romo Site:
(Haury and Gifford 1959:4-5; Sprague and Signori 1963:7). 10 of the 25 bells given away by Romo. Viewed the 15 remaining at ASM. Changed type.

159. Rooney Ranch Site:
(Stephen et al. 1992:1). Site AZ BB:9:93.

160. Roosevelt Lake 5:10:
(Sprague and Signori 1963:11; Withers 1946:29). Sprague and Signori (1963) cite this as Tonto Basin. Viewed at ASM.

161. Roosevelt Lake 5:10:
(Sprague and Signori 1963:11; Withers 1946:34-35). Viewed at ASM. Sprague and Signori (1963) cite this as Tonto Basin. Changed type.

162. Roosevelt Lake 5:10:
(Hough 1914:37; Judd 1954:111; Root 1952:21; Sprague and Signori 1963:11; Withers 1946:27-28). Sprague and Signori (1963) cite this as Tonto Basin.

163. Roosevelt Lake Area:
(Sprague 1964:22). Private collection of Mrs F.L. Chapman. From a burial near the Ten Ranch north of Roosevelt Lake by Ventry Stewart.

164. Roosevelt Lake Area:
(Vargas 1993, personal field notes from viewing collection). Private collection of John and Frances Horne. This bell is known as the "Blumer Bell". It has changed hands since Sprague and Signori's (1963) inventory which listed it in the private collection of Jane Blumer. It is now in the private collection of the Hornes. When cited by Sprague and Signori (1963) it was incorrectly assigned to type IC2a, which Sprague (1964) corrects to type IC6a.

165. Russell Grove:
(Sprague and Signori 1963:15). Viewed at Museum of New Mexico. Changed type. Old Catalog no. BAMT 26.1.

166. Salt River Valley:
(Sprague and Signori 1963:9).

167-169. Salt River Valley:
(Sprague 1964:21). Sprague (1964) cites these as from "South of Phoenix". Private collection of Frank McKinney.

170. San Joaquin Canyon:
(Di Peso et al. 1974:509; Phillips 1992:12-18). Two of these bells are now listed under catalog # 316602 and two others are now under catalog # 299647.

171. Rancho San Miguel:
(Sprague and Signori 1963:17; Withers 1946:39-40). Sprague and Signori (1963) list this site as San Miguel River. Changed type based on illustration.

172. Santana Ranch, Babicora:
(Sprague and Signori 1963:17; Withers 1946:30). Viewed at ASM. Changed type.

173. Schoolhouse Mesa:
(Owen Lindauer, personal communication 1994). Site No. AZ U:8:458.

174. Deleted from inventory.

175. Snaketown:
(Gladwin et al. 1937:164; Sprague and Signori 1963:7; Withers 1946:20). Viewed bells at ASM. Changed type. Sedentary Period.

176. Sundown Site:
(Grossman in press). Site No. NA 16385.

177. Three Rivers:
(Cosgrove and Cosgrove 1925:12; Sprague and Signori 1963:15). Site No. LA 1231.

178. Togetzoge:
(Schmidt 1926:637; Sprague and Signori 1963:9; Withers 1946:28). Associated with Gila Polychrome.

179. Tse T'lani:
(Ward 1969:97-98). Site NA 8762. 31 miles east of Flagstaff.

180 and 181. Turkey Creek:
(Sprague and Signori 1963:14). ASM Site Ariz. W:10:78.

182. Upper San Francisco River:
(Judd 1954:111; Root 1952:21; Sprague and Signori 1963:14). No notes.

183 and 184. Webb Site:
(Mills and Mills 1955:38, 60; Sprague 1964:20). Private collection of Jack P. and Vera M. Mills.

185. White Sands:
(George Jacobs, personal communication 1993). Site NM R:11:10 (GP). Bell whereabouts unknown.

186. Winona Village Ruin:
(McGregor 1941:262; Sprague and Signori 1963:11; Withers 1946:22). Withers (1946) lists this bell as 932/NA2134T.

187. Wupatki:
(Stanislawski 1963:203-206; Sprague and Signori 1963:12; Sprague 1964:22). "Stanislawski (1963) incorrectly assigns the number 1025/NA 405. m246 to this bell" (Sprague 1964:22).

188. Wupatki:
(Stanislawski 1963:206; Sprague 1964:21). "A copper pellet that may or may not be a bell clapper" (Sprague 1964:21).

189. Wupatki:
(Stanislawski 1963:203; Sprague 1964:22). No notes.

190-192. Wupatki:
(Sprague and Signori 1963:12). No notes.

193. Wupatki:
(Fewkes 1904:50; Sprague and Signori 1963:12; Withers 1946:43-44). No notes.

194. Deleted from inventory.

195. Wupatki:
(Root 1952:21 (#526); Sprague and Signori 1963:12; Sprague 1964:22; Stanislawski 1963:203; Withers 1946:21-22). No notes.

196. Young, Arizona Area:
(Sprague and Signori 1963:11; Withers 1946:29). This occurrence is from Cherry Creek in Pleasant Valley. Probably part of Q Ranch Site.

197. Deleted from inventory.

198-200. Deleted from inventory.

201-203. Casas Grandes:
(Di Peso et al. 1974:526-529). These bells were all found together in Room 9c-8. They were strung as a composite necklace, found in a charred cotton bag along with 3 sets of crotals tied in clusters of 7(2) and 6(1). Included in this necklace were 45 crotals of the IA1a-i type. Their catalog numbers are as follows:

CG/1307B	CG/1307I	CG/1307J	CG/1307K	CG/1307L
CG/1307M	CG/1307N	CG/1307P	CG/1307Q	CG/1307R
CG/1307S	CG/1307T	CG/1307U	CG/1307V	CG/1307W
CG/1307X	CG/1307Y	CG/1307AA	CG/1307BB	CG/1307CC
CG/1307DD	CG/1307EE	CG/1307GG	CG/1307HH	CG/1307JJ
CG/1307MM	CG/1307NN	CG/1307OO	CG.1307PP	CG/1307SS
CG/1307TT	CG/1307UU	CG/1307VV	CG/1307WW	CG/1307XX
CG/1307ZZ	CG/1307AAA	CG/1307BBB	CG/1307CCC	CG/1307EEE
CG/1307GGG	CG/1307III	CG/1307JJJ	CG.1307KKK	CG/1307LLL

**Di Peso indicates that there are 55 Type IA1a (IA1a-i) bells on this necklace, but only lists 45 bells of this type (see Di Peso et al. 1974:523 and 526-527).

Also part of this necklace was one crotal CG/1307O (his type ID1a) and another numbered CG/1307KK (his type IIB1a).

The three sets of crotals tied together and found in the same cotton bag with the composite necklace listed above are all of the IIE1a (my type IC13a) type. Their catalog numbers are as follows:

CG/1307Z	CG/1307F	CG/1307II	CG/1307LL	CG/1307Q
CG/1307RR	CG/1307YY	CG/1307DDD	CG/1307FFF	CG/1307HHH
CG/1308A	CG/1308B	CG/1308C	CG/1308D	CG/1308E
CG/1308F	CG/1308G	CG/1308H	CG/1308I	CG/1308J
CG/1308K	CG/1308L	CG/1308M	CG/1308N	CG/1308O
CG/1308P	CG/1308Q	CG/1308R	CG/1308S	CG/1308T
CG/1308U				

204. Deleted from inventory.

205. Deleted from Inventory.

206. Casas Grandes:
(Di Peso et al. 1974:526-529). No notes.

207. Deleted from Inventory.

208-212. Casas Grandes:
(Di Peso et al. 1874:526-529). No notes.

213. Deleted from inventory.

214 and 215. Casas Grandes:
(Di Peso et al. 1974:526-529). No notes.

216. Deleted from Inventory

217. Casas Grandes:
(Di Peso et al. 1974:526-529). No notes.

218. Deleted from Inventory.

219-222. Casas Grandes:
(Di Peso et al. 1974:526-529). No notes.

223. Deleted from Inventory.

224. Casas Grandes:
(Di Peso et al. 1974:526-529). No notes.

225. Deleted from Inventory.

226-232. Casas Grandes:
(Di Peso et al. 1974:526-529). No notes.

233 and 243. Deleted from inventory.

235-238. Casas Grandes:
(Di Peso et al. 1974:526-529). No notes.

239. Deleted from inventory.

240-246. Casas Grandes:
(Di Peso et al. 1974:526-529). No notes.

247-249. Nan Ranch:
(Harry Shafer, personal communication 1994). No notes.

250. San Jose Baviacora:
(Richard A. Pailes, personal communication 1993). No notes.

Appendix II: Copper Bell Inventory Organized Aphabetically by Site Name

map	site name...	N	C	#	cg type	type	curated	catalog #	provenience	context	date	ST	culture	S&N
1	76 Ranch		*	3		IC2a	ASM	A1206,1128,1229	special deposit	under metate	1300-1400	AZ		1
	76 Ranch Total			3										
47	Alamogordo			2		?	?	?	?	?	1000-1130	NM		2
	Alamogordo Total			2										
70	Alder Wash	**		1		?	?	?	pithouse	?	Sedentary	AZ	Hohokam	3
	Alder Wash Total			1										
63	Apache Creek			1		IA1a-i	MNM	7050/11	Room 6	fill	?	NM	Mogollon	4
	Apache Creek Total			1										
17	Armour's Ranch			1		?	lost	?	mound	?	?	AZ		5
	Armour's Ranch Total			1										
33	Aztec Ruin Area			1		IA1a-i	MNM	31425/11	?	?	PIII	NM	Anasazi	6
	Aztec Ruin Area Total			1										
33	Aztec, West Ruin			1		IA1a-i	?	?	Room 64, north wing	refuse	1110-1121	NM	Anasazi	7
	Aztec, West Ruin Total			1										
37	Babbitt Ranch			1		IA1a-i	MNA	1117/A.2421	?	?	?	AZ		8
	Babbitt Ranch Total			1										
59	Bis san'ani Ruin	**				?	?	?	chacoan kiva	in masonry wall	1100-1200	NM	Anasazi	9
	Bis san'ani Ruin Total			0										
49	Bloom Mound		*	3		IC1a	RMAC	?	Room C	2nd floor	1300-1400	NM	Mogollon	11
49	Bloom Mound		*	1		IC10a	RMAC	?	Room C	2nd floor	1300-1400	NM	Mogollon	11
49	Bloom Mound			3		?	?	?	?	?	1300-1400	NM	Mogollon	10
	Bloom Mound Total			7										
42	Cameron Creek		*	1		IA1a-i	MNM	27135/11	?	burial	Classic	NM	Mogollon	12
	Cameron Creek Total			1										
29	Canyon de Flag			2		IA1a-i	ASM	GP9076	?	?	PIII	AZ		13
	Canyon de Flag Total			2										
5	Casa Grande			1		IA1a-i	USNM	254495	?	?	Classic	AZ	Hohokam	14
5	Casa Grande			1		IA1a-i	USNM	254495	?	?	Classic	AZ	Hohokam	15
5	Casa Grande			1		?	?	?	Compound B	?	Classic	AZ	Hohokam	16
5	Casa Grande			2		IA1a-i	CGNM	541, 543	?	?	Classic	AZ	Hohokam	17
5	Casa Grande			2		IA1a-i	CGNM	539, 542	?	?	Classic	AZ	Hohokam	18
5	Casa Grande			1		IC1a	CGNM	540	?	?	Classic	AZ	Hohokam	19
	Casa Grande Total			8										
5	Casa Grande Area			1		IA1a-i	CGNM	535	?	?		AZ	Hohokam	20
	Casa Grande Area Total			1										
34	Casa Riconada			3		frag	MNM	?	?	?		NM		21
	Casa Riconada Total			3										
55	Casas Grandes		*	1		IC13a	PM	c-4018	?	?	Medio	CH	Casas G.	36
55	Casas Grandes		*	1		IC18a	INAH	CG/3837	Room 12-13	floor	Medio	CH	Casas G.	208
55	Casas Grandes		*	1	IIC1a	IC20a	INAH	CG/8204	Plaza 3-8, well stairs	fill	Medio	CH	Casas G.	237
55	Casas Grandes			2		IC2a	ASM	GP4479	?	?	Medio	CH	Casas G.	23

55	Casas Grandes			45	IA1a	IA1a-i	INAH	see notes	Room 9C-8	fill, trove	Medio	CH	Casas G.	201
55	Casas Grandes			1	ID1a	IA6a	INAH	CG/1307o	Room 9C-8	fill, trove	Medio	CH	Casas G.	202
55	Casas Grandes			1	IIB1a	IC2a	INAH	CG/1307kk	Room 9C-8	fill, trove	Medio	CH	Casas G.	203
55	Casas Grandes			31	IIE1a	IC13a	INAH	see notes	Room 9C-8	fill, trove	Medio	CH	Casas G.	205
55	Casas Grandes			1	IA1a	IA1a-i	INAH	CG/1340	Room 10B-8	floor fill	Medio	CH	Casas G.	206
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/6386	Room 12-16	fill	Medio	CH	Casas G.	209
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/1428	Room 14B-8	fill	Medio	CH	Casas G.	210
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/4263	Room 15-13	floor	Medio	CH	Casas G.	211
55	Casas Grandes			3	IIE1a	IC13a	INAH	CG/1820A,B,C	Room 16B-8	fill	Medio	CH	Casas G.	212
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/4262	Room 17-13	fill	Medio	CH	Casas G.	214
55	Casas Grandes			1	IC1a	IA5a	INAH	CG/6076	Room 18-16	floor	Medio	CH	Casas G.	215
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/2075	Room 21C-8	fill	Medio	CH	Casas G.	217
55	Casas Grandes			1	IIA1a	IC1a	INAH	CG/6886	Room 23-16	fill, trove	Medio	CH	Casas G.	219
55	Casas Grandes			2	IIE1a	IC13a	INAH	CG/3552, CG/6579	Room 32-12	fill	Medio	CH	Casas G.	220
55	Casas Grandes			1	IIB1a	IC2a	INAH	CG/8115	Room 33-8	fill	Medio	CH	Casas G.	221
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/7840	Room 33-16	fill	Medio	CH	Casas G.	222
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/8300	Room 42-8	fill	Medio	CH	Casas G.	224
55	Casas Grandes			1	IIB1a	IC2a	INAH	CG/8341	Room 43-8	fill	Medio	CH	Casas G.	226
55	Casas Grandes			1	IA1a	IA1a-i	INAH	CG/8357	Room 44B-8	floor A	Medio	CH	Casas G.	227
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/8356	Room 44B-8	floor A	Medio	CH	Casas G.	228
55	Casas Grandes			1	IA1a	IA1a-i	INAH	CG/326	Ballcourt 1,U3,S. end	fill	Medio	CH	Casas G.	229
55	Casas Grandes			1	IB1a	IA4a	INAH	CG/317	Ballcourt 1,U3,S.end	fill	Medio	CH	Casas G.	230
55	Casas Grandes			1	IIB1a	IC2a	INAH	CG/359	Ballcourt 1,U3,S.end	level A	Medio	CH	Casas G.	231
55	Casas Grandes			1	IIIA1a	IE2	INAH	CG/328	Ballcourt 1,U3,S.end	fill	Medio	CH	Casas G.	232
55	Casas Grandes			1	IA1a	IA1a-i	INAH	CG/1022	Plaza 2-6, East	fill	Medio	CH	Casas G.	235
55	Casas Grandes			1	IA1a	IA1a-i	INAH	CG/8205	Plaza 3-8, well stairs	fill	Medio	CH	Casas G.	236
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/8256	Plaza 3-8, center	floor A	Medio	CH	Casas G.	238
55	Casas Grandes			1	IIB1a	IC2a	INAH	CG/812A	Plaza 3-8	fill	Medio	CH	Casas G.	240
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/8126B	Plaza 3-8	fill	Medio	CH	Casas G.	241
55	Casas Grandes			1	IID1	IC19a	INAH	CG/8270	Plaza 3-8, NW psgwy	floor A	Medio	CH	Casas G.	242
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/8243	Plaza 3-8	fill	Medio	CH	Casas G.	243
55	Casas Grandes			2	IIE1a	IC13a	INAH	CG/8383, CG/8384	Plaza 6-8	fill	Medio	CH	Casas G.	244
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/6576	East Plaza	?	Medio	CH	Casas G.	245
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/8447	U8,TT,Blk 108-D	?	Medio	CH	Casas G.	246
	Casas Grandes Total			117										
55	Casas Grandes Area	**		1		IA1a-i	MNM	27137/11	?	?	?	CH	Casas G.	24
55	Casas Grandes Area	**		1		IA1a-i	MNM	37073/11	?	?	?	CH	Casas G.	27
55	Casas Grandes Area	**		3		IC12a	INAH	12-1-730	?	?	?	CH	Casas G.	28
55	Casas Grandes Area	**		4		IA1a-i	INAH	12-1-731	?	?	?	CH	Casas G.	29
55	Casas Grandes Area	**		1		IC10a	ASM	A32125 x-1	?	cache	?	CH	Casas G.	33
55	Casas Grandes Area	**		1		IA1a-i	ASM	A32125 x-2	?	cache	?	CH	Casas G.	34
55	Casas Grandes Area	**		1		IA6a	ASM	A32125 x-3	?	cache	?	CH	Casas G.	35

55	Casas Grandes Area		*	1		ID5a	MNM	27136/11	?	burial	?	CH	Casas G.	25
55	Casas Grandes Area		*	37		IA1a-I	ASM	GP4479	?	?	?	CH	Casas G.	31
55	Casas Grandes Area		*	11		IA1a-I	MNM	41947/11	?	?	?	CH	Casas G.	32
55	Casas Grandes Area		*	1		IC10a	AMNH	30/5736	?	?	?	CH	Casas G.	37
55	Casas Grandes Area			1		ID5a	ASM	GP4479-lost	?	?	?	CH	Casas G.	22
55	Casas Grandes Area			1		IA1a-I	PM	4018	?	burial	?	CH	Casas G.	38
55	Casas Grandes Area			13		IA1a-I	USNM	324225	?	burial	?	CH	Casas G.	39
	Casas Grandes Area Total			77										
23	Chavez Pass			1		IA1a-I	USNM	157839	?	?	AD 1381	AZ		41
	Chavez Pass Total			1										
21	Cherry Creek	**		1		IE2	PC	JH-002-a	?	?	1300-1400	AZ		42
21	Cherry Creek	**		1		IE3a	PC	JH-002-b	?	?	1300-1400	AZ		43
21	Cherry Creek	**		1		ID9a	PC	JH-002-f	?	?	1300-1400	AZ		44
21	Cherry Creek	**		1		IA4a	PC	JH-002-I	?	?	1300-1400	AZ		45
21	Cherry Creek	**		2		frag	PC	JH-002-g,h	?	?	1300-1400	AZ		46
21	Cherry Creek	**		3		IC13a	PC	JH-002-c,d,e	?	?	1300-1400	AZ		47
21	Cherry Creek	**		2		IC1a	PC	JH-002-j,k	?	?	1300-1400	AZ		48
21	Cherry Creek	**		1		IC10a	PC	JH-002-l	?	?	1300-1400	AZ		48
	Cherry Creek Total			12										
	Chiracahua Mt. Area			?		?	?	?	?	?	?	AZ		118
	Chiracahua Mt. Area Total			0										
83	Copper Bell House	**		1		IA1a-i	SWM	383.G.79	kiva like structure	floor	?	AZ		50
	Copper Bell House Total			1										
25	Copper Bell Ruin			5		IA1a-I	MNA	273/A.1223	?	burial-child	1120-1200	AZ	Anasazi	51
	Copper Bell Ruin Total			5										
50	Cox Ranch		*	1		IA4a	UNM	497-k	?	?	?	NM		52
50	Cox Ranch		*	1		IB2a	UNM	498-k	?	?	?	NM		53
	Cox Ranch Total			2										
39	Delgar Ruin		*	1		IC6a	USNM	170547	?	?	?	NM		54
39	Delgar Ruin			1		?	lost	none	?	?	?	NM		55
	Delgar Ruin Total			2										
52	Dona Ana Target Rng			1		IA1a-I	?	?	?	?	?	NM		56
	Dona Ana Target Rng Total			1										
	Edge of Cedars Ruin	**		3		?	?	?	?	?		UT		40
	Edge of Cedars Ruin Total			3										
28	Flagstaff Area			1		IA1a-I	MNA	1116/A.923	?	?	1120-1200	AZ		58
	Flagstaff Area Total			1										
40	Foote Canyon Pueblo			1		ID1a	CNHM	?	?	?	?	AZ		59
	Foote Canyon Pueblo Total			1										
35	Four Mile Ruin	*		1		IB2a	USNM	177804	cemetery N.of pueblo	burial	1300-1400	AZ		60
	Four Mile Ruin Total			1										
43	Galaz Ruin		*	1		IC1c	?	?	Room 4	burial #2	cl.mimbrs	NM	Mogollon	61

43	Galaz Ruin		*	1		IC1a	?	?	Room SWM-D	under floor	cl.mimbrs	NM	Mogollon	64
43	Galaz Ruin			1		IA1a-i	?	?	Room SWM-D	under floor	cl.mimbrs	NM	Mogollon	62
43	Galaz Ruin			1		?	lost	none	?	?	?	NM	Mogollon	63
	Galaz Ruin Total			4										
7	Gatlin Area	**		1		IA2a	PC	JH-003-f	?	?	?	AZ	Hohokam	119
7	Gatlin Area	**		2		IC16a	PC	JH-003-a,b	?	?	?	AZ	Hohokam	120
7	Gatlin Area	**		2		ID2a	PC	JH-003-n	?	?	?	AZ	Hohokam	121
7	Gatlin Area	**		3		IC17a	PC	JH-003-c,d,e	?	?	?	AZ	Hohokam	122
7	Gatlin Area	**		7		IA1a-i	PC	JH-003-g thru m	?	?	?	AZ	Hohokam	123
	Gatlin Area Total			15										
7	Gatlin Site		*	1		IB1a	ASM	A21402	Platform Mound	below Stage VI	Sacaton	AZ	Hohokam	65
7	Gatlin Site		*	1		IC14a	ASM	A21404	house near platform	burned roof	Sacaton	AZ	Hohokam	66
7	Gatlin Site		*	1		IC14a	ASM	A21403	platform mound	below Stage VI	Sacaton	AZ	Hohokam	67
7	Gatlin Site			1		IC1b	PC	A	E. of platform mound	cremation	Sacaton	AZ	Hohokam	68
7	Gatlin Site			4		IC7a	PC	C, D1, D2, D3	E. of platform mound	cremation	Sacaton	AZ	Hohokam	69
7	Gatlin Site			4		IA1a-i	PC	E1,E2, E3, G	E. of platform mound	cremation	Sacaton	AZ	Hohokam	70
7	Gatlin Site			4		IC1a	PC	F1, F2, F3, F4, B	E. of platform mound	cremation	Sacaton	AZ	Hohokam	71
7	Gatlin Site			4		IA1a-i	PC	?	E. of platform mound	cremation	Sacaton	AZ	Hohokam	72
7	Gatlin Site			1		IC1a	PC	?	E. of platform mound	cremation	Sacaton	AZ	Hohokam	73
7	Gatlin Site			35		IC1a	PC	?	E. of platform mound	cremation	Sacaton	AZ	Hohokam	74
	Gatlin Site Total			56										
15	Gila Pueblo		*	8		IC12a	ASM	GP53143-x	?	?	1345-1385	AZ		79
15	Gila Pueblo		*	1		IC8a	ASM	GP8743	Room 42	?	1345-1385	AZ		89
15	Gila Pueblo			1		frag	ASM	GP42268	Room 96	?	1345-1385	AZ		75
15	Gila Pueblo			1		IC1a	ASM	GP49336	?	?	1345-1385	AZ		76
15	Gila Pueblo			1		ID1a	ASM	GP52853	?	?	1345-1385	AZ		77
15	Gila Pueblo			1		IA1a-i	?	?	?	?	1345-1385	AZ		78
15	Gila Pueblo			7		IC10a	ASM	GP53143-x	?	?	1345-1385	AZ		80
15	Gila Pueblo			20		IA1a-i	ASM	GP7323	?	?	1345-1385	AZ		90
	Gila Pueblo Total			40										
	Gila River Area	**		1		ID10a	PC	JH-021	?	?	?	AZ		124
	Gila River Area Total			1										
85	Gillespie Dam Site	**		9		IA1a-i	lost	none	?	burial #3	1100-1200	AZ	Hohokam	81
	Gillespie Dam Site Total			9										
58	Globe Area			1		IC1a	PC	none	slope of Hog Mtn.	surface		AZ		82
	Globe Area Total			1										
32	Goodman Point		*	1		IA1a-i	?	?	E. of ctr. of mound	burial	PII-III	CO	Anasazi	83
	Goodman Point Total			1										
73	Grasshopper	**		3		IA1a-i	UA		Room 112, NE Quad.	fill over floor	1300-1400	AZ	Mogollon	84
	Grasshopper Total			3										
13	Hilltop House		*	1		IC11a	ASM	5458	?	?	1250-1300	AZ		86
13	Hilltop House			6		?	?	?	?	?	?	AZ		85

	Hilltop House Total			7										
60	Hodges Site			1		IA1a-i	?	?	?	?	?	AZ	Hohokam	87
	Hodges Site Total			1										
8	Homestead Site			1		IA1a-i	PC	none	?	?	?	AZ	Hohokam	88
	Homestead Site Total			1										
74	Homolovi II	**		1		IC6a	ASM	PD756FS19	Room 557	on 2nd floor	1300-1400	AZ	Anasazi	91
	Homolovi II Total			1										
19	Kinishba		*	1		IA1a-i	ASM	7302	?	?	1300	AZ		93
19	Kinishba			1		?	ASM	25200	?	?	1300	AZ		92
	Kinishba Total			2										
64	Kuykendall Site			1		IC1a	PC	none	?	?	?	AZ		94
64	Kuykendall Site			1		frag	PC	none	?	?	?	AZ		95
64	Kuykendall Site			1		IC1a	PC	none	?	?	?	AZ		96
	Kuykendall Site Total			3										
69	La Ciudad			2		IA1a-i	PC	none	refuse heap	burial-child	Classic	AZ	Hohokam	97
	La Ciudad Total			2										
61	Las Colinas	**		10		?	?	?	?	?	Classic?	AZ	Hohokam	98
	Las Colinas Total			10										
51	Las Cruces		*	?		IA1a-i	PC	none	?	?	El Paso	NM	Mogollon	99
	Las Cruces Total			0										
18	Livingston Ruin		*	2		IB2a	lost	?	?	?	?	AZ	Hohokam	100
	Livingston Ruin Total			2										
11	Los Hornos		*	1		IC2a	PM	c-4270	Ruin 7	?	Classic	AZ	Hohokam	101
	Los Hornos Total			1										
62	Los Morteros	**		1		IC14a	PC	none	near pithouse,ballct.	burned?	1100-1200	AZ	Hohokam	102
62	Los Morteros	**		1		IA1a-i	ASM	?	Feature 1082	Compound Wall 2	1100-1300	AZ	Hohokam	103
	Los Morteros Total			2										
2	Mammoth (Big Bell)			1		IC6a	ASM	A-4137	?	surface	1200-1400	AZ		104
	Mammoth (Big Bell) Total			1										
4	Marana			1		IA1a-i	PC	none	?	?	?	AZ	Hohokam	106
4	Marana			12		IA1a-i	PC	none	?	cremation	?	AZ	Hohokam	107
	Marana Total			13										
79	Maricopa Road Site	**		1		IC14a	?	?	Fea.19/trash fill pit	subsurface	1000-1100	AZ	Hohokam	105
	Maricopa Road Site Total			1										
44	Mattocks Ruin			1		IA1a-i	LM	16336	"middle period" room	burial	1100-1200	NM	Cl.Mimbrs	108
	Mattocks Ruin Total			1										
68	McSherry Ruin			1		IC1a	UCM	3277	Room 1	burial 22	?	NM		109
68	McSherry Ruin			1		IC1a	UCM	3254	Room 1	burial 9	?	NM		110
68	McSherry Ruin			2		IA1a-i	UCM	3254	Room 1	burial 9	?	NM		111
	McSherry Ruin Total			4										
14	Miami Area					IA1a-i	?	?	?	?	?	AZ		112
14	Miami Area				IIA1a	IC1a	?	?	?	?	?	AZ		113

	Miami Area Total			0											
	Mogollon Rim	**		1		ID4a	ASM	A36805	?	?	?	?	Mogollon?	114
	Mogollon Rim Total			1											
53	Mt. Riley Area		*	1		IB1a	MNM	6398/11	?	surface	1000-1130	NM		115
	Mt. Riley Area Total			1											
27	N.A. 627			1		IA1a-i	MNA	627/A.235	?	?	?	AZ		116
	N.A. 627 Total			1											
86	Nan Ranch			1		IA1a-i	UT			burial-adult male	1000-1050	NM	Mimbres	247
86	Nan Ranch			1		frag	UT			floor-late structure	1100-1130	NM	Mimbres	248
86	Nan Ranch			1		frag	UT					NM	Mimbres	249
	Nan Ranch Total			3											
72	Ojo de Agua	**		1		IA1a-i	INAH	?	Quad 1, Level 1	room fill	Medio	SO		125
	Ojo de Agua Total			1											
45	Old Town			1		IA1a-i	MNM	42719/11	?	?	1050-1200	NM	Mogollon	126
	Old Town Total			1											
54	Osborn Ruin		*	1		IC14a	MNM	42718/11	?	burial	1000-1130	NM	Mogollon	128
54	Osborn Ruin			1		IA1a-i	MNM	42716/11	?	burial	1000-1130	NM	Mogollon	127
54	Osborn Ruin			8		IA1a-i	MNM	27126-33	?	burial	?	NM	Mogollon	129
	Osborn Ruin Total			10											
75	Pinnacle Peak	**		1		IC7a	ASUM	FS#1290	Mound 3	Level 1	Sacaton	AZ	Hohokam	131
	Pinnacle Peak Total			1											
41	Point of Pines Ruin			3		IA1a-i	ASM	A5271,12034,7223	?	?	?	AZ		130
	Point of Pines Ruin Total			3											
24	Pollock Site			2		IA1a-i	MNA	1520/NA4317B3.7&8	?	?	1243-1303	AZ		132
	Pollock Site Total			2											
77	Pottery Mound	**		1		IC18a	Maxwell	79.17.3	NW Quad-Level 6	plaza floor	PIV	NM	Anasazi	133
	Pottery Mound Total			1											
22	Prescott Area			4		IA1a-i	PGM	Smith Collection	?	?	?	AZ		134
	Prescott Area Total			4											
76	Pueblo Alto	**		1		IC1a	NPSCP	FS# 35	Plaza 1-greathouse	fill of kiva	1040-1100	NM	Anasazi	135
	Pueblo Alto Total			1											
34	Pueblo Bonito		*	1		IC14a	AMNH	12754	Room 106	?	?	NM	Anasazi	141
34	Pueblo Bonito		*	2		IC14a	USNM	335582, 335583	Room 229	?	?	NM	Anasazi	144
34	Pueblo Bonito			1		IC1a	AMNH	7081	Room 83		?	NM	Anasazi	136
34	Pueblo Bonito			3		frag	AMNH	H-1274	Room 179	?	828-1130	NM	Anasazi	137
34	Pueblo Bonito			1		IA1a-i	AMNH	H-12746	Room 127	?	?	NM	Anasazi	138
34	Pueblo Bonito			1		frag	AMNH	H-12750	Room 150	?	?	NM	Anasazi	139
34	Pueblo Bonito			1		frag	AMNH	?	Room 168	?	?	NM	Anasazi	140
34	Pueblo Bonito			1		IA1a-i	AMNH	H-12755	Room 106	?	?	NM	Anasazi	142
34	Pueblo Bonito			3		IA1a-i	USNM	335581	?	?	?	NM	Anasazi	143
34	Pueblo Bonito			1		IA1a-i	USNM	335584	?	?	?	NM	Anasazi	145
34	Pueblo Bonito			1		?	USNM	335586	?	?	?	NM	Anasazi	146

34	Pueblo Bonito			1		frag	USNM	335587	?	?	828-1130	NM	Anasazi	147
34	Pueblo Bonito			1		frag	USNM	?	?	?	?	NM	Anasazi	148
	Pueblo Bonito Total			18										
34	Pueblo del Arroyo			2		frag	USNM	334766, 334767	?	?	1052-1101	NM	Anasazi	151
34	Pueblo del Arroyo			2			USNM	334763, 334765	?	?	1052-1101	NM	Anasazi	152
34	Pueblo del Arroyo			1		?	USNM	334764	?	?	1052-1101	NM	Anasazi	153
	Pueblo del Arroyo Total			5										
	Pueblo del Monte	**		1		?	?	?	from a room	?	Civano	AZ	Hohokam	154
	Pueblo del Monte Total			1										
10	Pueblo Grande	**		2		?	?	?	?	?	Civano?	AZ	Hohokam	149
10	Pueblo Grande			1		IA1a-i	AMNH	29.1/7323	trash mound	?	Civano?	AZ	Hohokam	150
	Pueblo Grande Total			3										
21	Q Ranch	**		6		?	?	?	?	burial	1300-1400	AZ	Mogollon	155
	Q Ranch Total			6										
56	Rancho San Miguel		*	2		IC9a	PM	c-2693, c-2694	?	?		CH	Casas G.	171
	Rancho San Miguel Total			2										
31	Red Rock Area			1		IA1a-i	BM	4144	?	?	?	AZ		156
	Red Rock Area Total			1										
3	Romo Site		*	15		IB1a	ASM	A-9073	special deposit	in jar	1150-1250	AZ	Hohokam	158
3	Romo Site			10		?	PC	given away by Romo	special deposit	in jar	1150-1250	AZ	Hohokam	157
	Romo Site Total			25										
81	Rooney Ranch Site	**		1		IC14a	PCC	?	pithouse #1, burned	floor	1000-1150	AZ	Hohokam	159
	Rooney Ranch Site Total			1										
20	Roosevelt Lake 5:10		*	1		IC10a	ASM	GP11470-2	on the shore of lake	surface	?	AZ	Hohokam	161
20	Roosevelt Lake 5:10			1		IC1a	ASM	GP11470-1	?	burial 56		AZ	Hohokam	160
20	Roosevelt Lake 5:10			1		IC1a	USNM	173068	?	?	?	AZ	Hohokam	162
	Roosevelt Lake 5:10 Total			3										
16	Roosevelt Lake Area		*	1		IC15a	PC	JH-001	?	?	?	AZ	Hohokam	164
16	Roosevelt Lake Area			2		IA1a-i	PC	none	?	burial	?	AZ	Hohokam	163
	Roosevelt Lake Area Total			3										
46	Russell Grove		*	1		IC10a	MNM	27125/11	?	?	?	NM	Mogollon	165
	Russell Grove Total			1										
	Salt River Valley			1		IC6a	lost		?	?	?	AZ	Hohokam	166
	Salt River Valley			1		ID2a	?	?	?	?	?	AZ	Hohokam	167
	Salt River Valley			1		ID4a	?	?	?	?	?	AZ	Hohokam	168
	Salt River Valley			1		ID6a	?	?	?	?	?	AZ	Hohokam	169
	Salt River Valley Total			4										
66	San Joaquin Canyon			12		IA1a-i	see notes	see notes	?	burial	Medio	CH	Casas G.	170
	San Joaquin Canyon Total			12										
87	San Jose Baviacora	**		1		IA1a-i	INAH	?		burial	Medio	SO	Rio Sonora	250
	San Jose Baviacora Total			1										
57	Santana Ranch		*	1		IB1a	ASM	20729	plowed up in field	disturbed		CH	Casas G.	172

	Santana Ranch Total			1										
82	Schoolhouse Mesa	**		1		IA1a-i	ASUM	25844	Feature 4 (midden)	Level 1	1060-1240	AZ	Salado	173
	Schoolhouse Mesa Total			1										
6	Snaketown		*	28		IC14a	ASM	GP44679	#8 storehouse	?	Sacaton	AZ	Hohokam	175
	Snaketown Total			28										
78	Sundown Site	**		2		IA1a-i	YCL	1259-94, 1259-95	?	burial-child	?	AZ		176
	Sundown Site Total			2										
48	Three Rivers			1		frag	?	?	?	?	1310-1330	NM		177
	Three Rivers Total			1										
12	Togetzoge			1		IA1a-i	AMNH	?	?	?		AZ	Salado	178
	Togetzoge Total			1										
80	Tse Tlani	**		1		IC1a	?	?	Pithouse 1,room3fill	storage pit 1	1100-1200	AZ	Sinagua	179
	Tse Tlani Total			1										
	Tubuc State Park Area	**		3		?	PSPM		?	?	?	AZ	?	251
	Tubuc State Park Area Total			3										
41	Turkey Creek Site			2		IA1a-i	ASM	A17855, 17856	?	?	?	AZ		180
41	Turkey Creek Site			6		IA1a-i	ASM	A20486	?	burial 222	?	AZ		181
	Turkey Creek Site Total			8										
38	Upper San Fran. R.			1		?	USNM	98211	?	?	?	NM		182
	Upper San Fran. R. Total			1										
67	Webb Site			1		IC1a	PC	1257W	?	?	?	AZ		183
67	Webb Site			1		IA1a-i	PC	1257W	?	?	?	AZ		184
	Webb Site Total			2										
71	White Sands	**		1		?	?	?	pueblo ruins	?	El Paso	NM	Mogollon?	185
	White Sands Total			1										
26	Winona Village Ruin			1		IC2a	MNA	923/NA2131X	trash mound	?	?	AZ		186
	Winona Village Ruin Total			1										
30	Wupatki			1		IA1a-i	WNMM	116	?	?	?	AZ		187
30	Wupatki			1		frag	MNA	621/NA405R66A.7f	?	?	?	AZ		188
30	Wupatki			1		frag	MNA	1025/NA405.M246	?	?	PIII	AZ		189
30	Wupatki			1		?	SWAC	W 394	Room 40	?	?	AZ		190
30	Wupatki			1		frag	SWAC	W 395	Room 40	?	?	AZ		191
30	Wupatki			1		IC1a	SWAC	W 396	Room 70	?	?	AZ		192
30	Wupatki			1		IA5a	lost		near Ruin A	burial	?	AZ		193
30	Wupatki			3		IA1a-i	MNA	621/NA405.B221	?	burial-adult	1120-1200	AZ		195
	Wupatki Total			10										
21	Young, AZ. Area			1	IA1a	IA1a-i	SWM	780-G-15	?	?	?	AZ		196
	Young, AZ. Area Total			1										
	Grand Total			617										

Appendix III: Copper Bell Inventory Organized by Bell Types

map	site name...	N	C	#	cg type	type	curated	catalog #	provenience	context	date	ST	culture	S&N
47	Alamogordo			2		?	?	?	?	?	1000-1130	NM		2
70	Alder Wash	**		1		?	?	?	pithouse	?	Sedentary	AZ	Hohokam	3
17	Armour's Ranch			1		?	lost	?	mound	?	?	AZ		5
59	Bis san'ani Ruin	**				?	?	?	chacoan kiva	in masonry wall	1100-1200	NM	Anasazi	9
49	Bloom Mound			3		?	?	?	?	?	1300-1400	NM	Mogollon	10
5	Casa Grande			1		?	?	?	Compound B	?	Classic	AZ	Hohokam	16
	Chiracahua Mt. Area			?		?	?	?	?	?	?	AZ		118
39	Delgar Ruin			1		?	lost	none	?	?	?	NM		55
	Edge of Cedars Ruin	**		3		?	?	?	?	?		UT		40
43	Galaz Ruin			1		?	lost	none	?	?	?	NM	Mogollon	63
13	Hilltop House			6		?	?	?	?	?	?	AZ		85
19	Kinishba			1		?	ASM	25200	?	?	1300	AZ		92
61	Las Colinas	**		10		?	?	?	?	?	Classic?	AZ	Hohokam	98
34	Pueblo Bonito			1		?	USNM	335586	?	?	?	NM	Anasazi	146
34	Pueblo del Arroyo			1		?	USNM	334764	?	?	1052-1101	NM	Anasazi	153
	Pueblo del Monte	**		1		?	?	?	from a room	?	Civano	AZ	Hohokam	154
10	Pueblo Grande	**		2		?	?	?	?	?	Civano?	AZ	Hohokam	149
21	Q Ranch	**		6		?	?	?	?	burial	1300-1400	AZ	Mogollon	155
3	Romo Site			10		?	PC	given away by Romo	special deposit	in jar	1150-1250	AZ	Hohokam	157
	Tubuc State Park Area	**		3		?	PSPM		?	?	?	AZ	?	251
38	Upper San Fran. R.			1		?	USNM	98211	?	?	?	NM		182
71	White Sands	**		1		?	?	?	pueblo ruins	?	El Paso	NM	Mogollon?	185
30	Wupatki			1		?	SWAC	W 394	Room 40	?	?	AZ		190
				57		? Total								
34	Casa Riconada			3		frag	MNM	?	?	?		NM		21
21	Cherry Creek	**		2		frag	PC	JH-002-g,h	?	?	1300-1400	AZ		46
15	Gila Pueblo			1		frag	ASM	GP42268	Room 96	?	1345-1385	AZ		75
64	Kuykendall Site			1		frag	PC	none	?	?	?	AZ		95
86	Nan Ranch			1		frag	UT			floor-late structure	1100-1130	NM	Mimbres	248
86	Nan Ranch			1		frag	UT					NM	Mimbres	249
34	Pueblo Bonito			3		frag	AMNH	H-1274	Room 179	?	828-1130	NM	Anasazi	137
34	Pueblo Bonito			1		frag	AMNH	H-12750	Room 150	?	?	NM	Anasazi	139
34	Pueblo Bonito			1		frag	AMNH	?	Room 168	?	?	NM	Anasazi	140
34	Pueblo Bonito			1		frag	USNM	335587	?	?	828-1130	NM	Anasazi	147
34	Pueblo Bonito			1		frag	USNM	?	?	?	?	NM	Anasazi	148
34	Pueblo del Arroyo			2		frag	USNM	334766, 334767	?	?	1052-1101	NM	Anasazi	151
48	Three Rivers			1		frag	?	?	?	?	1310-1330	NM		177
30	Wupatki			1		frag	MNA	621/NA405R66A.7f	?	?	?	AZ		188
30	Wupatki			1		frag	MNA	1025/NA405.M246	?	?	PIII	AZ		189
30	Wupatki			1		frag	SWAC	W 395	Room 40	?	?	AZ		191
				22		frag Total								

63	Apache Creek			1		IA1a-i	MNM	7050/11	Room 6	fill	?	NM	Mogollon	4
33	Aztec Ruin Area			1		IA1a-i	MNM	31425/11	?	?	PIII	NM	Anasazi	6
33	Aztec, West Ruin			1		IA1a-i	?	?	Room 64, north wing	refuse	1110-1121	NM	Anasazi	7
37	Babbitt Ranch			1		IA1a-i	MNA	1117/A.2421	?	?	?	AZ		8
42	Cameron Creek		*	1		IA1a-i	MNM	27135/11	?	burial	Classic	NM	Mogollon	12
29	Canyon de Flag			2		IA1a-i	ASM	GP9076	?	?	PIII	AZ		13
5	Casa Grande			1		IA1a-i	USNM	254495	?	?	Classic	AZ	Hohokam	14
5	Casa Grande			1		IA1a-i	USNM	254495	?	?	Classic	AZ	Hohokam	15
5	Casa Grande			2		IA1a-i	CGNM	541, 543	?	?	Classic	AZ	Hohokam	17
5	Casa Grande			2		IA1a-i	CGNM	539, 542	?	?	Classic	AZ	Hohokam	18
5	Casa Grande Area			1		IA1a-i	CGNM	535	?	?		AZ	Hohokam	20
55	Casas Grandes			45	IA1a	IA1a-i	INAH	see notes	Room 9C-8	fill, trove	Medio	CH	Casas G.	201
55	Casas Grandes			1	IA1a	IA1a-i	INAH	CG/1340	Room 10B-8	floor fill	Medio	CH	Casas G.	206
55	Casas Grandes			1	IA1a	IA1a-i	INAH	CG/8357	Room 44B-8	floor A	Medio	CH	Casas G.	227
55	Casas Grandes			1	IA1a	IA1a-i	INAH	CG/326	Ballcourt 1,U3,S. end	fill	Medio	CH	Casas G.	229
55	Casas Grandes			1	IA1a	IA1a-i	INAH	CG/1022	Plaza 2-6, East	fill	Medio	CH	Casas G.	235
55	Casas Grandes			1	IA1a	IA1a-i	INAH	CG/8205	Plaza 3-8, well stairs	fill	Medio	CH	Casas G.	236
55	Casas Grandes Area	**		1		IA1a-i	MNM	27137/11	?	?	?	CH	Casas G.	24
55	Casas Grandes Area	**		1		IA1a-i	MNM	37073/11	?	?	?	CH	Casas G.	27
55	Casas Grandes Area	**		4		IA1a-i	INAH	12-1-731	?	?	?	CH	Casas G.	29
55	Casas Grandes Area	**		1		IA1a-i	ASM	A32125 x-2	?	cache	?	CH	Casas G.	34
55	Casas Grandes Area		*	37		IA1a-i	ASM	GP4479	?	?	?	CH	Casas G.	31
55	Casas Grandes Area		*	11		IA1a-i	MNM	41947/11	?	?	?	CH	Casas G.	32
55	Casas Grandes Area			1		IA1a-i	PM	4018	?	burial	?	CH	Casas G.	38
55	Casas Grandes Area			13		IA1a-i	USNM	324225	?	burial	?	CH	Casas G.	39
23	Chavez Pass			1		IA1a-i	USNM	157839	?	?	AD 1381	AZ		41
83	Copper Bell House	**		1		IA1a-i	SWM	383.G.79	kiva like structure	floor	?	AZ		50
25	Copper Bell Ruin			5		IA1a-i	MNA	273/A.1223	?	burial-child	1120-1200	AZ	Anasazi	51
52	Dona Ana Target Rng			1		IA1a-i	?	?	?	?	?	NM		56
28	Flagstaff Area			1		IA1a-i	MNA	1116/A.923	?	?	1120-1200	AZ		58
43	Galaz Ruin			1		IA1a-i	?	?	Room SWM-D	under floor	cl.mimbrs	NM	Mogollon	62
7	Gatlin Area	**		7		IA1a-i	PC	JH-003-g thru m	?	?	?	AZ	Hohokam	123
7	Gatlin Site			4		IA1a-i	PC	E1,E2, E3, G	E. of platform mound	cremation	Sacaton	AZ	Hohokam	70
7	Gatlin Site			4		IA1a-i	PC	?	E. of platform mound	cremation	Sacaton	AZ	Hohokam	72
15	Gila Pueblo			1		IA1a-i	?	?	?	?	1345-1385	AZ		78
15	Gila Pueblo			20		IA1a-i	ASM	GP7323	?	?	1345-1385	AZ		90
85	Gillespie Dam Site	**		9		IA1a-i	lost	none	?	burial #3	1100-1200	AZ	Hohokam	81
32	Goodman Point		*	1		IA1a-i	?	?	E. of ctr. of mound	burial	PII-III	CO	Anasazi	83
73	Grasshopper	**		3		IA1a-i	UA		Room 112, NE Quad.	fill over floor	1300-1400	AZ	Mogollon	84
60	Hodges Site			1		IA1a-i	?	?	?	?	?	AZ	Hohokam	87
8	Homestead Site			1		IA1a-i	PC	none	?	?	?	AZ	Hohokam	88
19	Kinishba		*	1		IA1a-i	ASM	7302	?	?	1300	AZ		93

69	La Ciudad			2		IA1a-i	PC	none	refuse heap	burial-child	Classic	AZ	Hohokam	97
51	Las Cruces		*	?		IA1a-i	PC	none	?	?	El Paso	NM	Mogollon	99
62	Los Morteros	**		1		IA1a-i	ASM	?	Feature 1082	Compound Wall 2	1100-1300	AZ	Hohokam	103
4	Marana			1		IA1a-i	PC	none	?	?	?	AZ	Hohokam	106
4	Marana			12		IA1a-i	PC	none	?	cremation	?	AZ	Hohokam	107
44	Mattocks Ruin			1		IA1a-i	LM	16336	"middle period" room	burial	1100-1200	NM	Cl.Mimbrs	108
68	McSherry Ruin			2		IA1a-i	UCM	3254	Room 1	burial 9	?	NM		111
14	Miami Area					IA1a-i	?	?	?	?	?	AZ		112
27	N.A. 627			1		IA1a-i	MNA	627/A.235	?	?	?	AZ		116
86	Nan Ranch			1		IA1a-i	UT			burial-adult male	1000-1050	NM	Mimbres	247
72	Ojo de Agua	**		1		IA1a-i	INAH	?	Quad 1, Level 1	room fill	Medio	SO		125
45	Old Town			1		IA1a-i	MNM	42719/11	?	?	1050-1200	NM	Mogollon	126
54	Osborn Ruin			1		IA1a-i	MNM	42716/11	?	burial	1000-1130	NM	Mogollon	127
54	Osborn Ruin			8		IA1a-i	MNM	27126-33	?	burial	?	NM	Mogollon	129
41	Point of Pines Ruin			3		IA1a-i	ASM	A5271,12034,7223	?	?	?	AZ		130
24	Pollock Site			2		IA1a-i	MNA	1520/NA4317B3.7&8	?	?	1243-1303	AZ		132
22	Prescott Area			4		IA1a-i	PGM	Smith Collection	?	?	?	AZ		134
34	Pueblo Bonito			1		IA1a-i	AMNH	H-12746	Room 127	?	?	NM	Anasazi	138
34	Pueblo Bonito			1		IA1a-i	AMNH	H-12755	Room 106	?	?	NM	Anasazi	142
34	Pueblo Bonito			3		IA1a-i	USNM	335581	?	?	?	NM	Anasazi	143
34	Pueblo Bonito			1		IA1a-i	USNM	335584	?	?	?	NM	Anasazi	145
10	Pueblo Grande			1		IA1a-i	AMNH	29.1/7323	trash mound	?	Civano?	AZ	Hohokam	150
31	Red Rock Area			1		IA1a-i	BM	4144	?	?	?	AZ		156
16	Roosevelt Lake Area			2		IA1a-i	PC	none	?	burial	?	AZ	Hohokam	163
66	San Joaquin Canyon			12		IA1a-i	see notes	see notes	?	burial	Medio	CH	Casas G.	170
87	San Jose Baviacora	**		1		IA1a-i	INAH	?		burial	Medio	SO	Rio Sonora	250
82	Schoolhouse Mesa	**		1		IA1a-i	ASUM	25844	Feature 4 (midden)	Level 1	1060-1240	AZ	Salado	173
78	Sundown Site	**		2		IA1a-i	YCL	1259-94, 1259-95	?	burial-child	?	AZ		176
12	Togetzoge			1		IA1a-i	AMNH	?	?	?		AZ	Salado	178
41	Turkey Creek Site			2		IA1a-i	ASM	A17855, 17856	?	?	?	AZ		180
41	Turkey Creek Site			6		IA1a-i	ASM	A20486	?	burial 222	?	AZ		181
67	Webb Site			1		IA1a-i	PC	1257W	?	?	?	AZ		184
30	Wupatki			1		IA1a-i	WNMM	116	?	?	?	AZ		187
30	Wupatki			3		IA1a-i	MNA	621/NA405.B221	?	burial-adult	1120-1200	AZ		195
21	Young, AZ. Area			1	IA1a	IA1a-i	SWM	780-G-15	?	?	?	AZ		196
				277		**IA1a-i Total**								
7	Gatlin Area	**		1		IA2a	PC	JH-003-f	?	?	?	AZ	Hohokam	119
				1		**IA2a Total**								
55	Casas Grandes			1	IB1a	IA4a	INAH	CG/317	Ballcourt 1,U3,S.end	fill	Medio	CH	Casas G.	230
21	Cherry Creek	**		1		IA4a	PC	JH-002-i	?	?	1300-1400	AZ		45
50	Cox Ranch		*	1		IA4a	UNM	497-k	?	?	?	NM		52
				3		**IA4a Total**								

55	Casas Grandes			1	IC1a	IA5a	INAH	CG/6076	Room 18-16	floor	Medio	CH	Casas G.	215
30	Wupatki			1		IA5a	lost		near Ruin A	burial	?	AZ		193
				2		**IA5a Total**								
55	Casas Grandes			1	ID1a	IA6a	INAH	CG/1307o	Room 9C-8	fill, trove	Medio	CH	Casas G.	202
55	Casas Grandes Area	**		1		IA6a	ASM	A32125 x-3	?	cache	?	CH	Casas G.	35
				2		**IA6a Total**								
7	Gatlin Site		*	1		IB1a	ASM	A21402	Platform Mound	below Stage VI	Sacaton	AZ	Hohokam	65
53	Mt. Riley Area		*	1		IB1a	MNM	6398/11	?	surface	1000-1130	NM		115
3	Romo Site		*	15		IB1a	ASM	A-9073	special deposit	in jar	1150-1250	AZ	Hohokam	158
57	Santana Ranch		*	1		IB1a	ASM	20729	plowed up in field	disturbed		CH	Casas G.	172
				18		**IB1a Total**								
50	Cox Ranch		*	1		IB2a	UNM	498-k	?	?	?	NM		53
35	Four Mile Ruin	*		1		IB2a	USNM	177804	cemetery N.of pueblo	burial	1300-1400	AZ		60
18	Livingston Ruin		*	2		IB2a	lost	?	?	?	?	AZ	Hohokam	100
				4		**IB2a Total**								
49	Bloom Mound		*	1		IC10a	RMAC	?	Room C	2nd floor	1300-1400	NM	Mogollon	11
55	Casas Grandes Area	**		1		IC10a	ASM	A32125 x-1	?	cache	?	CH	Casas G.	33
55	Casas Grandes Area		*	1		IC10a	AMNH	30/5736	?	?	?	CH	Casas G.	37
21	Cherry Creek	**		1		IC10a	PC	JH-002-I	?	?	1300-1400	AZ		48
15	Gila Pueblo			7		IC10a	ASM	GP53143-x	?	?	1345-1385	AZ		80
20	Roosevelt Lake 5:10		*	1		IC10a	ASM	GP11470-2	on the shore of lake	surface	?	AZ	Hohokam	161
46	Russell Grove		*	1		IC10a	MNM	27125/11	?	?	?	NM	Mogollon	165
				13		**IC10a Total**								
13	Hilltop House		*	1		IC11a	ASM	5458	?	?	1250-1300	AZ		86
				1		**IC11a Total**								
55	Casas Grandes Area	**		3		IC12a	INAH	12-1-730	?	?	?	CH	Casas G.	28
15	Gila Pueblo		*	8		IC12a	ASM	GP53143-x	?	?	1345-1385	AZ		79
				11		**IC12a Total**								
55	Casas Grandes		*	1		IC13a	PM	c-4018	?	?	Medio	CH	Casas G.	36
55	Casas Grandes			31	IIE1a	IC13a	INAH	see notes	Room 9C-8	fill, trove	Medio	CH	Casas G.	205
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/6386	Room 12-16	fill	Medio	CH	Casas G.	209
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/1428	Room 14B-8	fill	Medio	CH	Casas G.	210
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/4263	Room 15-13	floor	Medio	CH	Casas G.	211
55	Casas Grandes			3	IIE1a	IC13a	INAH	CG/1820A,B,C	Room 16B-8	fill	Medio	CH	Casas G.	212
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/4262	Room 17-13	fill	Medio	CH	Casas G.	214
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/2075	Room 21C-8	fill	Medio	CH	Casas G.	217
55	Casas Grandes			2	IIE1a	IC13a	INAH	CG/3552, CG/6579	Room 32-12	fill	Medio	CH	Casas G.	220
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/7840	Room 33-16	fill	Medio	CH	Casas G.	222
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/8300	Room 42-8	fill	Medio	CH	Casas G.	224
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/8356	Room 44B-8	floor A	Medio	CH	Casas G.	228
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/8256	Plaza 3-8, center	floor A	Medio	CH	Casas G.	238
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/8126B	Plaza 3-8	fill	Medio	CH	Casas G.	241

55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/8243	Plaza 3-8	fill	Medio	CH	Casas G.	243
55	Casas Grandes			2	IIE1a	IC13a	INAH	CG/8383, CG/8384	Plaza 6-8	fill	Medio	CH	Casas G.	244
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/6576	East Plaza	?	Medio	CH	Casas G.	245
55	Casas Grandes			1	IIE1a	IC13a	INAH	CG/8447	U8,TT,Blk 108-D	?	Medio	CH	Casas G.	246
21	Cherry Creek	**		3		IC13a	PC	JH-002-c,d,e	?	?	1300-1400	AZ		47
				55		**IC13a Total**								
7	Gatlin Site		*	1		IC14a	ASM	A21404	house near platform	burned roof	Sacaton	AZ	Hohokam	66
7	Gatlin Site		*	1		IC14a	ASM	A21403	platform mound	below Stage VI	Sacaton	AZ	Hohokam	67
62	Los Morteros	**		1		IC14a	PC	none	near pithouse,ballct.	burned?	1100-1200	AZ	Hohokam	102
79	Maricopa Road Site	**		1		IC14a	?	?	Fea.19/trash fill pit	subsurface	1000-1100	AZ	Hohokam	105
54	Osborn Ruin		*	1		IC14a	MNM	42718/11	?	burial	1000-1130	NM	Mogollon	128
34	Pueblo Bonito		*	1		IC14a	AMNH	12754	Room 106	?	?	NM	Anasazi	141
34	Pueblo Bonito		*	2		IC14a	USNM	335582, 335583	Room 229	?	?	NM	Anasazi	144
81	Rooney Ranch Site	**		1		IC14a	PCC	?	pithouse #1, burned	floor	1000-1150	AZ	Hohokam	159
6	Snaketown		*	28		IC14a	ASM	GP44679	#8 storehouse	?	Sacaton	AZ	Hohokam	175
				37		**IC14a Total**								
16	Roosevelt Lake Area		*	1		IC15a	PC	JH-001	?	?	?	AZ	Hohokam	164
				1		**IC15a Total**								
7	Gatlin Area	**		2		IC16a	PC	JH-003-a,b	?	?	?	AZ	Hohokam	120
				2		**IC16a Total**								
7	Gatlin Area	**		3		IC17a	PC	JH-003-c,d,e	?	?	?	AZ	Hohokam	122
				3		**IC17a Total**								
55	Casas Grandes		*	1		IC18a	INAH	CG/3837	Room 12-13	floor	Medio	CH	Casas G.	208
77	Pottery Mound	**		1		IC18a	Maxwell	79.17.3	NW Quad-Level 6	plaza floor	PIV	NM	Anasazi	133
				2		**IC18a Total**								
55	Casas Grandes			1	IID1	IC19a	INAH	CG/8270	Plaza 3-8, NW psgwy	floor A	Medio	CH	Casas G.	242
				1		**IC19a Total**								
49	Bloom Mound		*	3		IC1a	RMAC	?	Room C	2nd floor	1300-1400	NM	Mogollon	11
5	Casa Grande			1		IC1a	CGNM	540	?	?	Classic	AZ	Hohokam	19
55	Casas Grandes			1	IIA1a	IC1a	INAH	CG/6886	Room 23-16	fill, trove	Medio	CH	Casas G.	219
21	Cherry Creek	**		2		IC1a	PC	JH-002-j,k	?	?	1300-1400	AZ		48
43	Galaz Ruin		*	1		IC1a	?	?	Room SWM-D	under floor	cl.mimbrs	NM	Mogollon	64
7	Gatlin Site			4		IC1a	PC	F1, F2, F3, F4, B	E. of platform mound	cremation	Sacaton	AZ	Hohokam	71
7	Gatlin Site			1		IC1a	PC	?	E. of platform mound	cremation	Sacaton	AZ	Hohokam	73
7	Gatlin Site			35		IC1a	PC	?	E. of platform mound	cremation	Sacaton	AZ	Hohokam	74
15	Gila Pueblo			1		IC1a	ASM	GP49336	?	?	1345-1385	AZ		76
58	Globe Area			1		IC1a	PC	none	slope of Hog Mtn.	surface		AZ		82
64	Kuykendall Site			1		IC1a	PC	none	?	?	?	AZ		94
64	Kuykendall Site			1		IC1a	PC	none	?	?	?	AZ		96
68	McSherry Ruin			1		IC1a	UCM	3277	Room 1	burial 22	?	NM		109
68	McSherry Ruin			1		IC1a	UCM	3254	Room 1	burial 9	?	NM		110
14	Miami Area				IIA1a	IC1a	?	?	?	?	?	AZ		113

76	Pueblo Alto	**		1		IC1a	NPSCP	FS# 35	Plaza 1-greathouse	fill of kiva	1040-1100	NM	Anasazi	135
34	Pueblo Bonito			1		IC1a	AMNH	7081	Room 83		?	NM	Anasazi	136
20	Roosevelt Lake 5:10			1		IC1a	ASM	GP11470-1	?	burial 56		AZ	Hohokam	160
20	Roosevelt Lake 5:10			1		IC1a	USNM	173068	?	?	?	AZ	Hohokam	162
80	Tse Tlani	**		1		IC1a	?	?	Pithouse 1,room3fill	storage pit 1	1100-1200	AZ	Sinagua	179
67	Webb Site			1		IC1a	PC	1257W	?	?	?	AZ		183
30	Wupatki			1		IC1a	SWAC	W 396	Room 70	?	?	AZ		192
				61		**IC1a Total**								
7	Gatlin Site			1		IC1b	PC	A	E. of platform mound	cremation	Sacaton	AZ	Hohokam	68
				1		**IC1b Total**								
43	Galaz Ruin		*	1		IC1c	?	?	Room 4	burial #2	cl.mimbrs	NM	Mogollon	61
				1		**IC1c Total**								
55	Casas Grandes		*	1	IIC1a	IC20a	INAH	CG/8204	Plaza 3-8, well stairs	fill	Medio	CH	Casas G.	237
				1		**IC20a Total**								
1	76 Ranch		*	3		IC2a	ASM	A1206,1128,1229	special deposit	under metate	1300-1400	AZ		1
55	Casas Grandes			2		IC2a	ASM	GP4479	?	?	Medio	CH	Casas G.	23
55	Casas Grandes			1	IIB1a	IC2a	INAH	CG/1307kk	Room 9C-8	fill, trove	Medio	CH	Casas G.	203
55	Casas Grandes			1	IIB1a	IC2a	INAH	CG/8115	Room 33-8	fill	Medio	CH	Casas G.	221
55	Casas Grandes			1	IIB1a	IC2a	INAH	CG/8341	Room 43-8	fill	Medio	CH	Casas G.	226
55	Casas Grandes			1	IIB1a	IC2a	INAH	CG/359	Ballcourt 1,U3,S.end	level A	Medio	CH	Casas G.	231
55	Casas Grandes			1	IIB1a	IC2a	INAH	CG/812A	Plaza 3-8	fill	Medio	CH	Casas G.	240
11	Los Hornos		*	1		IC2a	PM	c-4270	Ruin 7	?	Classic	AZ	Hohokam	101
26	Winona Village Ruin			1		IC2a	MNA	923/NA2131X	trash mound	?	?	AZ		186
				12		**IC2a Total**								
39	Delgar Ruin		*	1		IC6a	USNM	170547	?	?	?	NM		54
74	Homolovi II	**		1		IC6a	ASM	PD756FS19	Room 557	on 2nd floor	1300-1400	AZ	Anasazi	91
2	Mammoth (Big Bell)			1		IC6a	ASM	A-4137	?	surface	1200-1400	AZ		104
	Salt River Valley			1		IC6a	lost		?	?	?	AZ	Hohokam	166
				4		**IC6a Total**								
7	Gatlin Site			4		IC7a	PC	C, D1, D2, D3	E. of platform mound	cremation	Sacaton	AZ	Hohokam	69
75	Pinnacle Peak	**		1		IC7a	ASUM	FS#1290	Mound 3	Level 1	Sacaton	AZ	Hohokam	131
				5		**IC7a Total**								
15	Gila Pueblo		*	1		IC8a	ASM	GP8743	Room 42	?	1345-1385	AZ		89
				1		**IC8a Total**								
56	Rancho San Miguel		*	2		IC9a	PM	c-2693, c-2694	?	?		CH	Casas G.	171
				2		**IC9a Total**								
	Gila River Area	**		1		ID10a	PC	JH-021	?	?	?	AZ		124
				1		**ID10a Total**								
40	Foote Canyon Pueblo			1		ID1a	CNHM	?	?	?	?	AZ		59
15	Gila Pueblo			1		ID1a	ASM	GP52853	?	?	1345-1385	AZ		77
				2		**ID1a Total**								
7	Gatlin Area	**		2		ID2a	PC	JH-003-n	?	?	?	AZ	Hohokam	121

	Salt River Valley			1		ID2a	?	?	?	?	?	AZ	Hohokam	167
				3		**ID2a Total**								
	Mogollon Rim	**		1		ID4a	ASM	A36805	?	?	?	?	Mogollon?	114
	Salt River Valley			1		ID4a	?	?	?	?	?	AZ	Hohokam	168
				2		**ID4a Total**								
55	Casas Grandes Area			1		ID5a	ASM	GP4479-lost	?	?	?	CH	Casas G.	22
55	Casas Grandes Area		*	1		ID5a	MNM	27136/11	?	burial	?	CH	Casas G.	25
				2		**ID5a Total**								
	Salt River Valley			1		ID6a	?	?	?	?	?	AZ	Hohokam	169
				1		**ID6a Total**								
21	Cherry Creek	**		1		ID9a	PC	JH-002-f	?	?	1300-1400	AZ		44
				1		**ID9a Total**								
55	Casas Grandes			1	IIIA1a	IE2	INAH	CG/328	Ballcourt 1,U3,S.end	fill	Medio	CH	Casas G.	232
21	Cherry Creek	**		1		IE2	PC	JH-002-a	?	?	1300-1400	AZ		42
				2		**IE2 Total**								
21	Cherry Creek	**		1		IE3a	PC	JH-002-b	?	?	1300-1400	AZ		43
34	Pueblo del Arroyo			2			USNM	334763, 334765	?	?	1052-1101	NM	Anasazi	152
				3		**IE3a Total**								
				617		**Grand Total**								

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